Archaeology of Delaware River Valley

By Max Schrabisch

VOL. I

Publications
of the
Pennsylvania Historical Commission

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Archaeology of Delaware River Valley

Between Hancock and Dingman's Ferry
in Wayne and Pike Counties

By
MAX SCHRABISCH

Volume 1

PUBLICATIONS
of the
PENNSYLVANIA HISTORICAL COMMISSION
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INTRODUCTION

Those interested in Pennsylvania antiquities are to be congratulated on the presentation in the present volume of Dr. Max Schrabisch's 'Archæology of the Delaware River Valley between Hancock and Dingman's Ferry.'' Not only is it a work of profound research and originality but it sets a high standard for further similar productions appearing under the auspices of the Pennsylvania Historical Commission. Furthermore, it is a work of literary merit as well as historical accuracy, and is written in exceptionally clear English. It is not a mere compendium, dry and technical, but is delightfully written, and holds the reader's attention like a page of Macaulay. It covers a section of country full of aboriginal remains, yet a region long settled by the whites, where one would suppose that these traces of earlier inhabitants would be well-nigh effaced. Tireless tracker, and indefatigable student that he is, Dr. Schrabisch has attained the seemingly impossible in re-creating for us a consecutive record of archæological development, which will remain as the foundation for any future commentaries. In presenting this, the fruits of Dr. Schrabisch's labors, it not only stands out as a fine initial achievement of the Pennsylvania Indian Survey, but calls attention to the urgent need of similar reports from all other sections of Pennsylvania where there are aboriginal or prehistoric remains. Dr. Schrabisch's great work treats one locality and the types of remains therein. Other parts of Pennsylvania where there are different races of early inhabitants and entirely diversified types of remains deserve identical attention and review. We feel, and let us hope that Dr. Schrabisch's report starts a series, not only of further splendid work by himself, but by other research students in the interest of the Historical Commission and the Indian Survey covering the whole of Pennsylvania. Undoubtedly the appearance of this volume, so lucid and technically correct will, through its appeal to a wide class of readers, lead to a demand for similar reports from other sections of the Commonwealth, so that in the next ten years all parts will be covered, notably southwestern Pennsylvania, where a mass of materials, typical of Dr. Schrabisch's discoveries in the northwestern district, have been uncovered during the past six months. The Historical Commission desires to express its thanks to Governor Fisher for his active patronage of aboriginal research, to Dr. John A. H. Keith,

Superintendent of Public Instruction for his continued coöperation, to Miss Frances Dorrance, Secretary of Pennsylvania Historical Commission, to Captain Frederic A. Godcharles, its Curator, for editorial perusal of Dr. Schrabisch's manuscript, to Dr. H. H. Shenk, Executive Secretary of the Commission, to Mrs. Mary C. Ramsey, of the Department of Archives, and to Miss Grace Boyer, Assistant Secretary, for their able and painstaking proof reading.

HENRY W. SHOEMAKER,
Chairman.

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Archaeology of Delaware River Valley Between Hancock and Dingman's Ferry in Wayne and Pike Counties

By Max Schrabisch

VESTIGES OF THE REDMAN IN DELAWARE RIVER VALLEY BETWEEN HANCOCK AND EQUINUNK, WAYNE COUNTY

The Pennsylvania side of Delaware River Valley from a point about two miles above Hancock down to Equinunk, Wayne County, Pennsylvania, a distance of some fifteen miles, was carefully explored by the author during the summers of 1925 and 1926. The task before him was to ascertain the precise position or distribution of prehistoric stations as well as their character and relative importance as disclosed by the quantity and variety of the cultural remains found thereon, to attempt to draw from these some conclusions regarding both the tribal affiliations of the ancient occupants of this region and their interaction or contact with other groups and, lastly, to offer suggestions as to the probable route of trails once used by them.

In the course of four months devoted to this work, he succeeded in fixing the whereabouts of quite a number of sites, comprising one aboriginal burial ground, four rock shelters, three large encampments or villages and a score of smaller stations. Most of these were on the bank of the river, the others within a few miles of it.

Near Hancock was a massing of sites though chiefly on the New York side of the Delaware and it is for the sake of rounding out the archæology of this particular area that all these have been included in the report regardless of modern State lines. (See chart.)

The topographic map, covering this section of the river valley, having not yet been published, the researcher was compelled to make shift with inferior maps, all of which were on a small scale and without contour lines.

CONFIGURATION OF THE LAND

Before treating of these various sites, it will be advisable to outline briefly the physical features of this part of the valley. In

the main, its topography is identical with what is observed elsewhere along the river all the way from its birth in the Western Catskills to Delaware Water Gap. Its upper reaches, for more than a hundred and fifty miles, are through a mountainous district, its valley rarely more than a mile in width and hemmed in almost continuously by forest-clad hills, that range from about 3,000 feet near its source to elevations of 1,600 feet at the Delaware Water Gap, now rising steeply from the water's edge, now falling back far enough to make room for flats or bottom lands. Numerous tributaries, large and small, descend from the adjacent heights, through intervale and gorge, placid enough streams at ordinary times, but assuming the character of roaring torrents after periods of prolonged precipitations or with the melting of snow and ice in early spring.

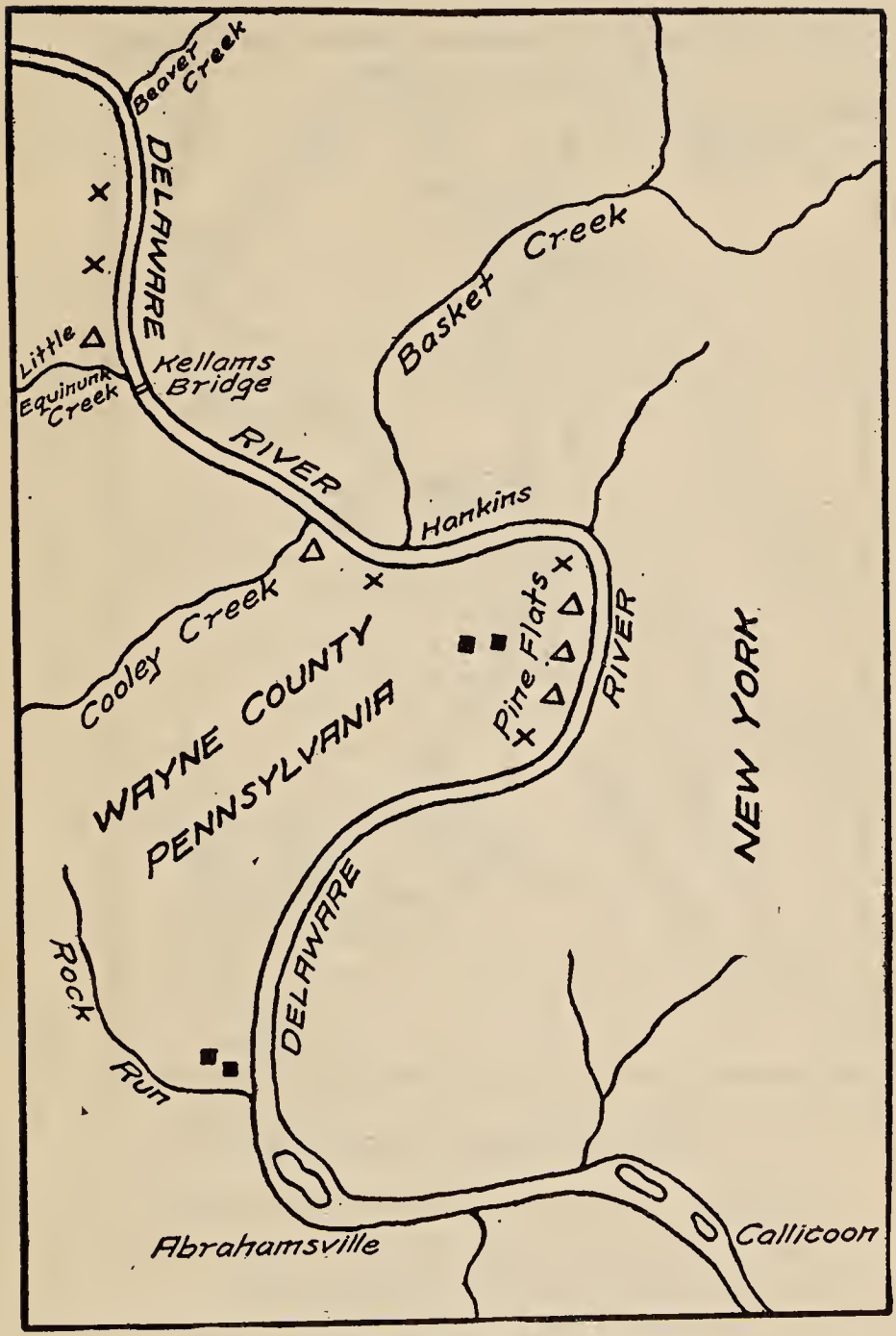
This being the general aspect of the valley for a long distance, we see it roughly duplicated along the fifteen-mile strip from Hancock to Equinunk. Wooded hills sentinel both banks of the river, with level tracts here and there, often at the mouth of some affluent, emerging from a minor valley near by. It was at such localities that the aborigines were wont to linger, erecting their rude abodes, and so also, in the section under review, the traces of their whilom presence have been invariably detected wherever a side valley, watered by a creek, opened out upon the river.

SITES NEAR HANCOCK

West of Hancock, in Wayne County, about two miles above the bridge, spanning the West Branch of Delaware River, there are indications of what appears to have been a prehistoric fishing camp on the flats along the river, on the A. H. Bossley farm. Netsinkers have here been found together with other implements of various types such as arrowheads made out of chert and crude pottery fragments of Algonkin origin.

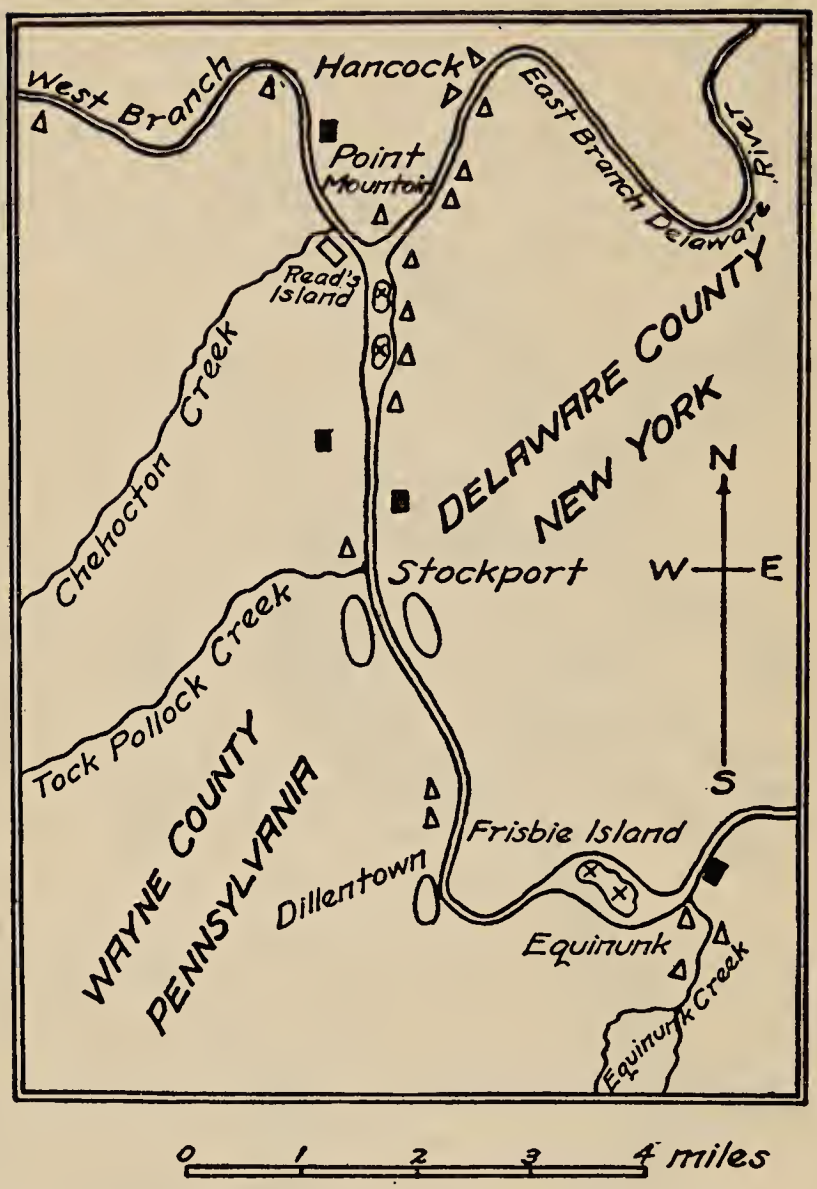
Remains indicative of a small camp were discovered on the West Branch of the river, in Pennsylvania, at a point immediately west of Hancock. Chips and broken artifacts lay here scattered over the field by the river's bank.

About two miles downstream, also in Pennsylvania, a prehistoric cemetery occupied the sandy plot of ground along the West Branch, just above its junction with the East Branch. Here, human skeletal remains, associated with relics of undoubted Indian origin, have been repeatedly plowed up or become exposed to view through heavy rains gullying the light alluvial soil. According to tradition, these last



Map of a section of Delaware River Valley showing Indian camp sites and rock shelters between Kellams Bridge and Abrahamsville, Wayne County, Penna.

FIG. 1



Indian Sites on Delaware River from above Hancock to Equinunk, Wayne County, Pennsylvania.

□ = rock shelters.
○ = village sites.
△ = camp sites.
□ = burial place.

FIG. 2

resting-places of the genuine Americans were formerly marked by large flagstones placed upright. As today none of these markers is left standing, the exact position of the remaining graves is no longer known. On this same field surface finds of a prehistoric type have been made, proving that it was occupied by the living also.

POINT MOUNTAIN

Opposite this old cemetery, on the New York side of the river, lies Point Mountain, a prominent feature of the landscape, 1,400 feet high, rising in splendid isolation within the northern portion of the peninsula or neck of land formed by the confluence of its two branches, and dominating the flats at its southerly base in the very forks of the river.

As this peninsula and its immediate environs proved to be replete with the earmarks of the Indian and as, moreover, it indubitably forms an integral part of or is bound up with the prehistory on the Pennsylvania side of the river, the author, as stated above, deemed it proper to correlate or treat as a complex all of the sites noted hereabouts. To omit, merely for the sake of present State boundaries, the supplementary evidence deducible from a study of the New York group of stations, could only have the effect of leaving the archæology of this area incomplete with the result that it would be impossible for us to gain anything but a wholly inadequate conception of its real character, that is, of the importance of this neighborhood to those who anciently frequented it.

Quite a cluster of stations was identified throughout this district, bearing witness to oft-repeated occupation on the part of the redskins. That it was a favorite resort of theirs is, indeed, amply attested by the memorials, once so plentiful, they have left behind. This is not surprising considering the excellent situation of this terrain at the confluence of the East and West Branches of Delaware River, a place which could be approached by two water routes and several valley trails, all converging near here.

THE POINT MOUNTAIN ROCK SHELTER

A rock abode was located at the westerly base of Point Mountain, on the Lynn Leonard farm, less than half a mile south of the former toll bridge across the West Branch. At this spot there is a great mass of rocks and broken ledges that, time out of mind, had become detached, it seems, from the crags crowning the brow of the mountain and, pitching down its steep declivity, came to a rest near its foot. (See Fig. 1.)

One of the chunks of rock composing this pile is of huge size, undercut or hollow along part of its base so as to give rise to a natural covert, some twenty feet long by ten feet deep, with a roof no less than ten feet above its floor along the line of shelter. The cavity thus constituted faces west overlooking the West Branch, some four hundred feet away, with a level field intervening in front, between it and the river.

Digging into the subsoil beneath its roof brought to light unmistakable evidence of erstwhile Indian tenancy, consisting of chips, that is to say, the refuse of implement-making, badly fractured unio shells—a species of fresh water mussels, much used for food—deer bones, pieces of the carapace of tortoise and fragments of a couple of arrow points.

The raw material employed in the fashioning of the stone tools was chiefly chert, together with some flint and quartz. Traces of a hearth were seen near the inner wall of the shelter, containing a small quantity of ancient charcoal and ashes along with smoke-stained and fire-split stones. Embedded in the débris were two small potsherds, exhibiting cord-markings, viz., the simplest type of decoration used by the savages. All these telltale signs lay from about three inches to a foot below the surface.

In view of the paucity of the culture débris here noted, one is justified in assuming that this spot was but rarely visited. The bits of pottery call up the image of a squaw stopping at this shelter for a short time in company with her male consort.

THE POINT MOUNTAIN ENCAMPMENT

It is commonly known hereabouts that an aboriginal settlement was situated, more or less permanently, on the flats south of Point Mountain, within the forks of the two arms of the Delaware, about a mile to the south of the rock shelter just described. Numerous implements of primitive industry have here been recovered in the past, including a considerable number of celts or skinning knives, so commonly used by the ancient Iroquois of Northern New York in lieu of the hafted tomahawks and hatchets of the neighboring Algonkin tribes.

There is a tradition, not altogether trustworthy, that an Indian burial ground is situated on the lower slopes of Point Mountain, a short distance from the above encampment. According to other reports, some of the early white settlers and a few Negro slaves were here interred.

SITES ALONG THE EAST BRANCH

Camping grounds have been found on both banks of the East Branch, near the Erie railroad bridge. Today, however, there are few vestiges extant "in situ," tending to reveal the former occurrence of these camps. It is only by dint of close searching that any such may be discovered.

DELAWARE RIVER SITES

Farther downstream, beginning at a point opposite the lower extremity of the peninsula and stretching away for a couple of miles along the bank of Delaware River, in New York State, there are wide flats that unquestionably had once been dotted with many a wigwam site. A careful scrutiny revealed no less than six separate stations, each of them identifiable by the usual camp litter, such as chips and bits of pottery. Without exception, they lay close to the river, the banks of which are high and dry.

THE ISLAND STATIONS

A scant mile below the southern point of the peninsula and opposite the lower end of the flats just dealt with there are two islands, sufficiently elevated to escape ordinary floods. In years gone by, various artifacts referable to the aborigines have been picked up on these islands, especially on the upper one named Read's Island, and among these were several finely wrought celts, made of porphyry or some close-grained black slaty material. As already said, tools of this type are reminiscent of the culture of the Iroquois and the frequency with which they have been found in this region seems to bespeak considerable intercourse between these Delaware Indians and those of the Six Nations.

RESUME

The multitude of prehistoric stations at Hancock and its surroundings seems to proclaim that this district was frequently invaded by the redskins. Apart from a dozen or so camp sites, the prehistoric cemetery on the Wayne County side of the river, in Pennsylvania, is in itself a most significant landmark of a bygone age, telling an eloquent tale of prolonged occupation.

Unfortunately, this burial place has never been explored so that nothing is known concerning the number of bodies there interred. Tradition, however, avers that it is of large size and that the dead from many miles round about were here consigned to earth. This would have been in conformity with the customs of the Indians who,

we are told, often carried their dead for great distances. It is stated more particularly that all those who expired at Stockport and vicinity, some five miles away, were always brought to this cemetery for burial. Certain it is that many of those who once dwelt in the region just discussed found their last home in this burying ground.

Naturally enough, sites of this kind are often found adjoining the villages of the vanished race and the number of bodies there buried may be taken as some sort of index not only of the extent or populousness of these villages but also of the degree of permanency of their occupation.

INDIAN PLACE NAMES

It is popularly supposed that this neighborhood was known to the natives by the name of "Chehocton." However, it would seem more probable that this appellation was applied by them to the creek in Wayne County, emptying into the Delaware directly west of Point Mountain, about a mile below the old toll bridge. Accordingly, the interpretation of the word, so generally accepted as meaning the "meeting of the waters," is probably erroneous. Conversely, there is weighty authority in favor of the assumption that it signifies "where there is glue."

In some of the earliest records dealing with this district, the word is spelled "Schehacan," with the emphasis on the second syllable. Another rendering is "Shehawken."

As for the aboriginal name of the East Branch, it is quite certain that it was called by the natives "Pepacton," whereas the West Branch appears to have borne the name "Ouaquaga." In this connection we may recall that John Burroughs in his delightful book, describing a canoe trip down the East Branch, refers to this stream as "Pepacton."

THE ROCK SHELTER ABOVE STOCKPORT

We shall now return to Wayne County, Pennsylvania. Owing, most likely, to the roughness of the river valley between Point Mountain and Stockport, signs of Indian habitations were apparently absent along this three-mile strip. Even now, it is an inhospitable section, practically devoid of houses, with the mountains ascending abruptly almost from the river's margin and therefore supplying few spots that would be immediately suitable for building purposes. Consequently, though this section was a potential hunting-ground and as such not to be spurned, the savages evidently passed it by when in quest of a desirable camping ground.

However, while exploring the mountain slopes skirting this part of the valley, the author discovered a rock shelter at an elevation of more than a hundred feet above the road and nearly one hundred and fifty feet above the river, about a mile and a half north of Stockport or midway between the latter place and Point Mountain. (See Fig. 2.)

It is a good-sized covert, twenty-five feet long by fifteen feet deep and it faces east. Excavating its dirt floor, an exquisitely fashioned celt, made of porphyry, some four inches long by two inches wide, was turned up. In addition, there came to view a knife, made of gray chert, i. e., a mineral closely akin to flint. It was two and a half inches long, of triangular shape and also of perfect workmanship. Traces of a fireplace were likewise noted, extending along the outside of the covert yet well beneath its sheltering arch.

On inquiry it was learned that many years ago a local hunter, seeking protection under this rock from a passing storm, found quite a number of arrow points, lying plainly exposed on the surface, and additional ones by scratching the dirt.

Why the red huntsmen should have used a rock thus situated, may appear enigmatic at first sight. Not only was it difficult to reach, necessitating a hard climb through a tangled wilderness of rank vegetation, strewn with boulders and ledge-like outcrops, but there was apparently no potable water anywhere near it, the nearest supply being Delaware River, far down the mountainside, about a quarter of a mile distant. At the same time, there was nothing to indicate that the savages had ever lingered at this spot. For one thing, there were no chips and this bit of negative evidence may be taken to prove that they did not tarry long enough to replenish their stock of tools. Nor were there any bones, always so suggestive of cooking and a subsequent repast.

THE STOCKPORT SETTLEMENT

The broad flats, flanking both sides of the river at Stockport, have for many years past yielded countless artifacts assignable to prehistoric workmanship. These telltale marks were found scattered on the Pennsylvania side for more than half a mile, commencing north of the mouth of Tock Pollock Creek and continuing southward to where the mountain approaches the river. On the opposite side, in New York State, the products of primitive art were also met with over a tract of many acres and, withal, in equal profusion.

The occurrence hereabouts of agricultural tools like hoes, pestles and pitted hammerstones endows this locality with additional signifi-

cance, inasmuch as this class of implements furnishes clear evidence that those who lived here devoted some of their time to farming, which means that they set aside part of the land for the raising of some of their staples, such as maize, beans and squashes, the harvesting of which involved a more prolonged sojourn. In other words, the redskins once residing in this neighborhood, were to some extent "glebæ adscriptus," that is, they were somewhat stationary in their habits. In view of these facts it is hardly to be doubted that Stockport was anciently the site of a fair-sized Indian settlement pulsing with life and that, if not occupied continuously, they returned to it ever and anon for a variable space of time and in ever changing numbers. With its origin probably reaching back centuries before the arrival of the white man, it witnessed, we may presume, abandonment and reoccupation at frequent intervals.

BELOW STOCKPORT

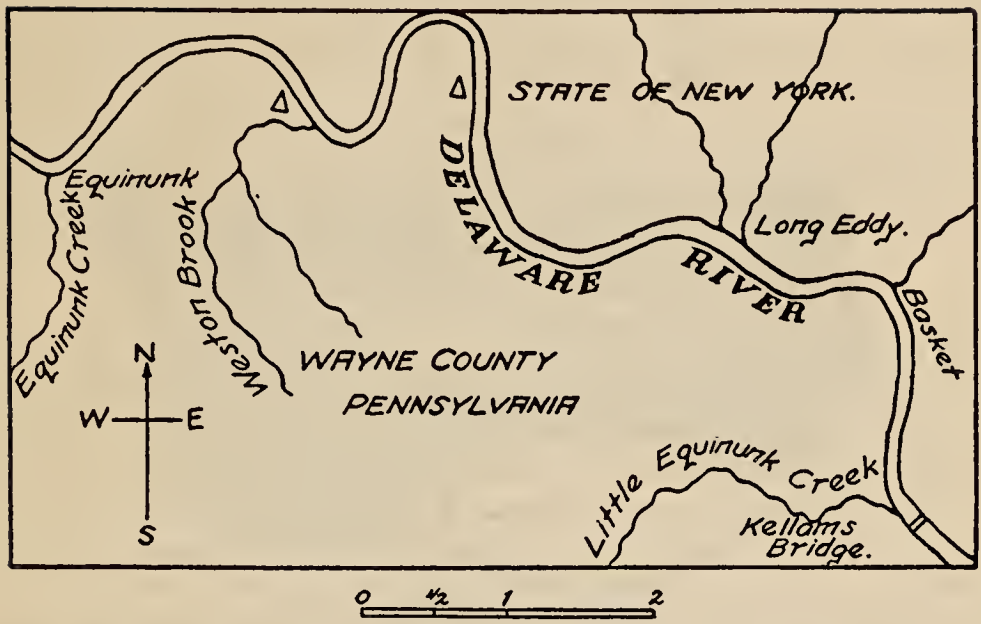
Proceeding downstream for about a mile, we come to another tract of river bottom, desirable enough to have attracted the Redman's attention, as is evidenced by the relics picked up there.

DILLONTOWN

Just below the latter place, about two miles south of Stockport, the river, having flowed southward all the way from Point Mountain, sweeps around to the east in a sharp curve, almost doubling upon itself. Near the bend there is a farm, owned by the Dillon family, called the "Arrowhead Farm" because of the fact that the fields between river and mountain have yielded hundreds of arrow points along with other relics of various types. Nor was there any lack of tools of an agricultural character, testifying, as before, to the art of husbandry and the proximity of cultivated fields that antedated by centuries those of the white intruder.

Here, too, several well-made celts were obtained, but not a single tomahawk. This is significant in so far as the latter type of implements is fairly common wherever Algonkin tribes had held sway. In this territory, however, Algonkin though it was, the tomahawk seemed to have been superseded almost entirely by the celt, a fact hinting at Iroquoian influence, since the Iroquois made little or no use of the former, preferring the latter instead.

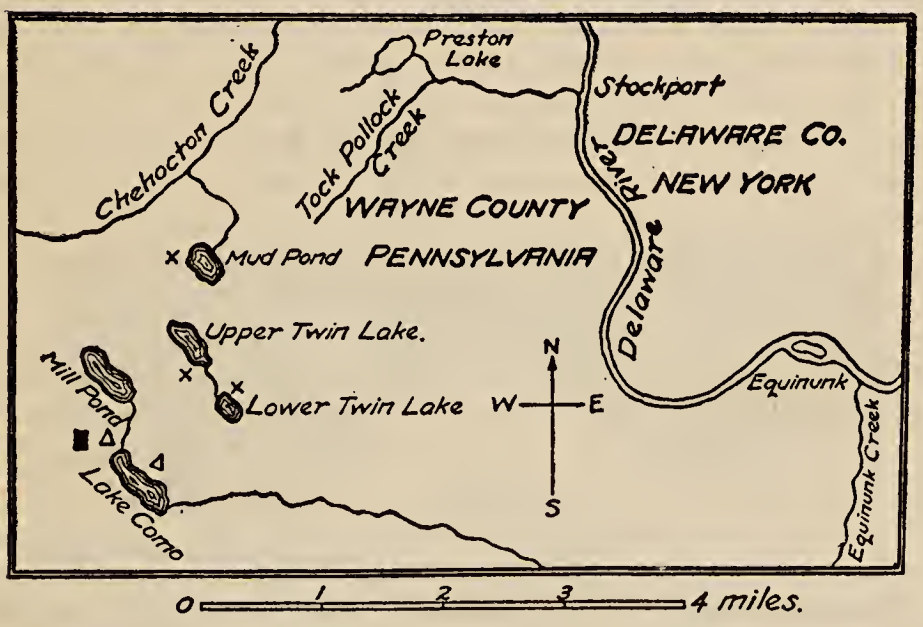
Amid the varied assortment of articles gathered on the Dillon farm was a semi-lunar or crescent-shaped slate knife of a kind employed even today by the Eskimos of the frozen North. Many such speci-



Scale: an inch to a mile.

Map of Delaware River Valley between Equinunk and Kellams bridge, showing situation of two Indian camp sites, marked thus: Δ Δ

FIG. 3

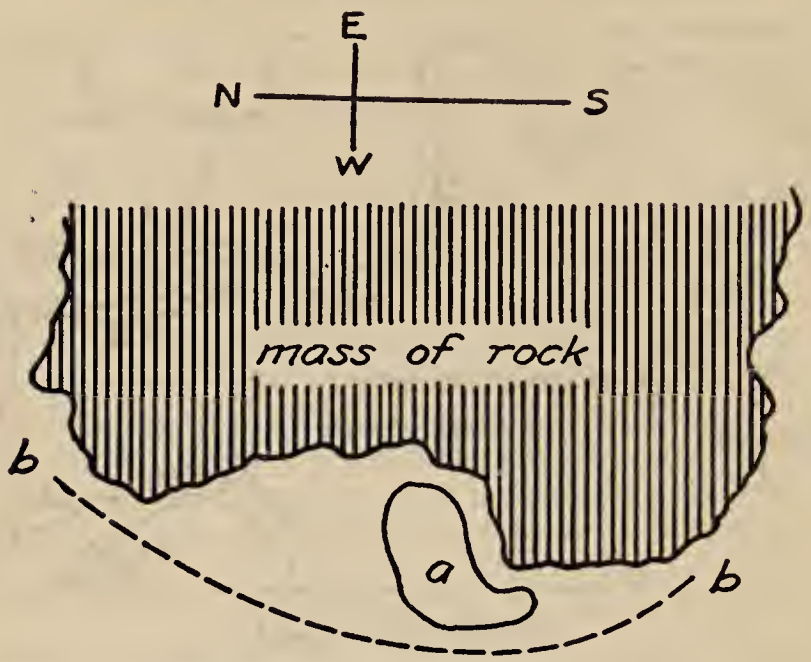


Scale. About 4 miles to 3 inches.

Map of section west of Equinunk, Wayne County, Penna. showing approximate position of rock shelter and Indian camp sites in the vicinity of Lake Como

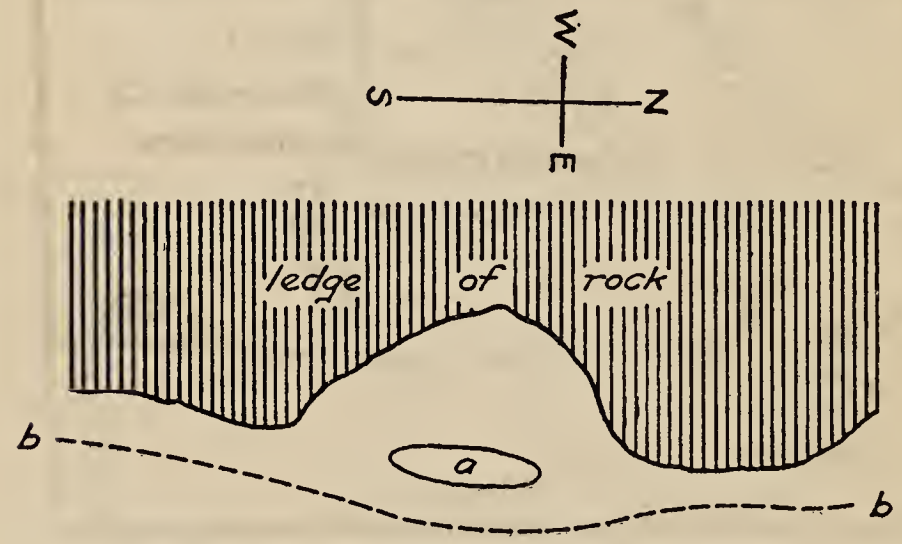
■ rock shelter.
ΔΔ camp sites.
×× isolated finds.

FIG. 4



Ground plan of Point Mountain Rock Shelter. Delaware County. N.Y.
a. = Where remains were found.
b.b. = Line of shelter.

FIG. 5



Ground Plan of Stockport rock shelter, Wayne County; Penna.
a. = fireplace.
b.b. = line of shelter.

FIG. 6

mens are reported to have been found in Northern New York on ancient Algonkin sites.

Touching upon the raw materials encountered within this region, examination of local collections made it clear that chert had been predominantly used for arrow points, spearheads and scrapers, together with a little flint, quartz, jasper, slate and argillite.

FRISBIE ISLAND

The rough three-mile section of river valley between Dillontown and Equinunk did not seem to have offered many spots adapted to aboriginal habitation. As a consequence, memorials harking back to Indian days were apparently lacking. The only signs of that nature, noted anywhere intermediate between these places, were on Frisbie Island, an island about half a mile in length, lying just above Equinunk. Yet even here the remains, interesting as they are in enabling us to trace the movements of the Redman, were far from abundant, for according to information received by the writer, nothing has here been collected save a few arrow points and fragments of pottery jars. Most of the latter were plain or without any decoration; a few displayed fabric markings.

As usual, the cultural débris appeared to be concentrated at certain circumscribed spots, these being probably identical with former lodge sites. While, today, the island is occasionally inundated in the wake of heavy downpours swelling the volume of the river, destructive freshets were not likely to happen at the time of the Indian by reason of the magnificent growth of timber that cloaked all the land as far as the Great Plains and served to hold back or conserve the surplus waters.

THE EQUINUNK STATIONS

When, in the latter half of the eighteenth century, the first white settlers arrived at Equinunk, they could not help observing the signs of prehistoric occupancy along the river, near the mouth of Equinunk Creek, as well as on the level tracts of land extending for some distance up the latter. At the present time these old Indian camping grounds have become all but unrecognizable and the very memory of them is fast being blotted out from the mind of man. Drained of their treasures, there is hardly anything left to identify their former whereabouts except a few chips and some broken pottery.

By dint of close reconnoitering, both along river and creek, the author succeeded in locating at least three of these former sites, chips and other camp refuse serving to identify them. Two of these were

on the west bank of the creek, one near its mouth, the other a scant mile upstream, and the third one lay on its east bank, about half a mile from the river. That additional sites were utilized, now wiped out by surface disturbances, may be considered as certain in view of the favorable situation of this neighborhood with its broad flats bordering Delaware River, enclosed by high hills east and west, and watered, moreover, by a large creek which formerly, no doubt, teemed with trout.

The same fate of annihilation has, decades ago, overtaken what was once a big cave at the foot of a high cliff, locally known as the Equinunk rocks, a quarter of a mile east of the mouth of Equinunk Creek. Like many other sites of this nature, it fell prey to the operations of the quarrymen. As it lay close to the river, we have good reasons for thinking that the redskins often camped under its sheltering roof. And, indeed, on making inquiries among some of the older local residents, the author learned that in their boyhood days, some forty years ago, when the cavern was still intact, they found there many an arrow point and other reminders of primitive origin.

CHARACTER OF RIVER STATIONS

In all probability, most of the stations in this part of Delaware River valley, as indeed elsewhere along its course, were fishing camps, established periodically or at the most auspicious seasons, when the prospects of rich hauls were of the best. Unquestionably, in those days the Delaware swarmed with fish and it was therefore an easy matter to secure an abundance of savory food, all the more welcome in that it helped to relieve the monotony of a meat diet.

ANCIENT HIGHWAYS

Obviously, the area under discussion, no less than any other, was intersected by many a trail, facilitating travel through the wilderness, whether it was for the chase or for the purpose of tribal intercommunication. While this is so, it must be equally patent that all vestiges of these ancient paths have vanished long since. For, by their very nature, trails are ephemeral, commencing to disappear the moment they fall into disuse. Thus, practically nothing is known as to their precise situation, especially as the early travelers neglected to hand down to us anything save the vaguest of hints regarding their former whereabouts.

Admittedly, all river valleys were anciently skirted by pathways, since they afforded at once a comparatively easy passage and an op-

portunity for angling. Hence, it is reasonably certain that at Hancock at least two important prehistoric thoroughfares converged, following both branches of the river down to their junction, thence continuing downstream all the way to its mouth.

Additional or secondary paths ramified, we may be sure, from these main avenues of travel, threading their way through depressions between the hills and facilitating access to the mountain tarns where fishing was good, as well as to the runways of deer and other quarry prized for food and peltry.

THE CHEHOCTON CREEK TRAIL

If, as has just been set forth, the general direction of trails, then as now, was controlled chiefly by topographical factors, we may confidently assume that the valley, drained by Chehocton Creek, was one of the routes trodden by the savages, when bound for the lake country with its scores of ponds dappling the northern portion of Wayne County. That, as such, it witnessed much travel may be inferred from the fact that it started near the confluence of the two arms of Delaware River, that is, from a neighborhood which, unless all signs fail, had been one of the rallying points of aboriginal life for a radius of many miles.

THE PORTAGE PATH

Seldom, as remarked above, has there been transmitted to us, either by early chroniclers or carefully preserved tradition, any definite information relative to the course taken by the aboriginal tracks. Fortunately, respecting the area here dealt with, we are in possession of a precious bit of intelligence concerning the so-called Portage Path that once led from the Indian habitations, dotting the Stockport flats on both sides of the Delaware, across the mountains of Northern Wayne County, Pennsylvania, to the Great Bend of the Susquehanna. Yet, here also, in default of details, much is left to conjecture.

It may be presumed, however, that on leaving Stockport the trail wound along the deep depression, watered by Tock Pollock Creek, now called Beaver Dam Creek, and having gained the deeply eroded tableland a few miles west of the river, trended westward via Chehocton Pond to the headwaters of Starrucca Creek, thence down this stream to Lanesboro, on the banks of the Susquehanna. The distance it thus covered amounted to some twenty-five miles, lying athwart a hilly district, spangled, as just stated, with numerous lakes and ponds.

THE EQUINUNK TRAIL

Another prehistoric highway, the quondam existence of which may be deduced from the lay of the land, ran southward from the present village of Equinunk, on Delaware River, flanking Equinunk Creek to a point about two miles south of the village. Here it probably forked, one arm following the South Branch, the other the North Branch. By the latter, if it existed, the numerous ponds, scattered throughout the central part of Wayne County, could have been readily approached.

STATIONS BETWEEN EQUINUNK AND KELLAM'S BRIDGE

Only two prehistoric camping grounds were located along the nine miles of river valley from Equinunk to Kellam's Bridge. Here the river's course is marked by a series of bold loops, as it wends its tortuous way amid the circumjacent mountains, rearing their rugged flanks from its very banks. Such being the character of this territory, it evidently afforded few spots that would have complied with aboriginal requirements.

One of the two sites lay on the elevated bank directly north of the mouth of Weston Brook, about a mile and a half north northeast of Equinunk. Fractured chunks of chert and other raw material served to reveal the spot. (See map.)

The second site was two miles farther downstream in a locality locally known as the coal flats. It occupied a high bank along the easterly portion of the sharp curve, here described by the river. Being like the former on uncultivated ground, overgrown with shrubby vegetation, traces denoting erstwhile occupation on the part of the Redman, could not readily be discovered. What little was seen, consisted of the usual camp refuse such as flakes of chert and flint, associated with crude potsherds. It was learned, however, that numerous relics of the Redman had been gathered at this place particularly after the land had been ploughed.

THE PREHISTORIC DWELLERS

A study of the cultural remains from this part of Delaware River valley leaves no room for doubt that those who roamed this territory, antecedent to the advent of the European intruder, were of Algonkin stock. The pottery fragments, in particular, show clearly an Algonkin origin, though somewhat modified by Iroquoian influence. That this influence was considerable, is emphasized, moreover, by the numerous finds of celts made in this region and by what appears to be a corresponding total absence of tomahawks and hatchets.

As regards the tribal affiliations of the natives anciently inhabiting this section, there seems to be no question whatever that they were members of the Munsee division of the Lenni Lenâpé, who had their headquarters or council seat opposite Minisink Island, on the Jersey shore of the Delaware, about twelve miles south of Port Jervis.

THE REGION ABOUT LAKE COMO

The archæological study of Delaware River valley, between Hancock and Equinunk, of which an account has just been given, was supplemented somewhat by reconnaissance work amidst the hills of Wayne County, a few miles west of the river. Thus, the valleys of Chchocton and Tock Pollock creeks were explored for miles, without, however, any discoveries being made either of camp sites or rock shelters. It was not until the elevated district near Lake Como had been reached that signs of prehistoric significance were noted. Here, about seven miles west of Equinunk, an area covering no less than twelve square miles and including Lake Como as well as a group of ponds northeast of it, was carefully gone over with results that were entirely gratifying in that five camp sites and one rock shelter could be mapped.

Unfortunately for a survey of this kind, the surface conditions of much of this region have of late been greatly disturbed especially with respect to the fields bordering the ponds, that is to say, the very spots where the aborigine would most likely have pitched his abode. To be more explicit, many of these ponds, of which there are ninety-odd in Wayne County, have been enlarged by the construction of dams across their outlets, an operation that entailed the submersion of the original shore lines, often for a considerable distance, and therewith the wiping out of most vestiges of a prehistoric character, anciently occurring there.

Furthermore, numerous camps for boys and girls have recently sprung up on the banks of many of the principal sheets of water hereabouts, involving additional changes of minor surface features. As a consequence, the data derivable from field work at this latter day must needs be fragmentary, to say the least, and the story of the Redman's activities, of his wanderings and, more particularly, of the localities where he dwelt, can no longer be read with anything like completeness. Hence, in the region under consideration, once so replete, it seems, with the signs of former Indian occupation, the researcher had to depend largely upon oral information supplied by old residents, and he was practically unable to verify such information by direct evidence. Accordingly, each of the five camp sites have been pointed out to him by men who had known these places in their pristine state and had col-

lected therefrom many an artifact attributable to primitive culture. Today, all these sites are unrecognizable for the reasons stated in the foregoing.

These camps were situated as follows: two are on the northern shore of Lake Como, while one each is on Lower and Upper Twin Lake and on Mud Pond, as shown on the accompanying sketch map. As regards the rock shelter, it is about half a mile northwest of Lake Como. It opens to the east and has a roof projection of barely four feet. On what seems to be unimpeachable information, two perfect earthenware vessels of large size were discovered under this rock about the year 1890. Nothing could be learned, however, as to what became of them.

We may assume that none of the numerous tarns scattered throughout Wayne County, escaped the scrutiny of the roving redskin, indefatigable hunter that he was. Though his more permanent habitations were in the valley of the Delaware, he, indubitably, often made his way to the ponds ensconced among the mountains, in order to beguile the speckled trout, so abundant in his day or to surprise the fleet-footed deer and other game animals, coming to the lakes to drink. There is hardly any question, therefore, that traces of his whilom presence could in the past have been detected on the banks of any of the little lakes, traces that are now becoming increasingly rare and approaching the vanishing point.

INDIAN SITES ALONG THE DELAWARE BETWEEN KELLAM'S BRIDGE AND ABRAHAMSVILLE, WAYNE COUNTY

In summer of 1924 the writer made an archæological study of the seven-mile section of Delaware River Valley between Kellam's Bridge on the north and Abrahamsville on the south, both these places being in Wayne County, Pennsylvania, with the Delaware forming the boundary line between this State and that of New York. He did not restrict himself to the banks of the stream and the land immediately contiguous to it, where signs of former Indian occupancy would naturally be most abundant, but investigated the adjacent mountains east and west, in New York and Pennsylvania, with a view to locating prehistoric rock shelters, that is to say, such as would bear testimony to having been anciently resorted to.

His efforts in this latter field of research were successful beyond all expectations in that he discovered no less than four aboriginal rock stations, all of them on the Pennsylvania side of the river. In this connection it is to be noted that sites of this sort are, as a rule, difficult to find, being generally situated in some remote ravine, at the foot of a cliff, with thick vegetation and fallen rock masses screening them from sight, whereas open encampments are easily recognized and located by the practiced eye not only on the strength of the well known tell-tale marks of prehistoric industry littering them, but often even at a distance and quite beforehand by considerations of a topographic character.

As regards ordinary camp sites within the territory under review, two such places were noticed by the writer in New York State as against five in Pennsylvania, a fact which, apart from the four shelters, clearly demonstrates that the west shore, at least along this section, was more frequented than the easterly one. None of these sites, however, appears to have been of much importance, judging by the relatively small quantity and variety of cultural vestiges recovered there in the past. Indeed, this particular portion of the valley, in common no doubt with its continuation for a dozen miles or so to the north and south, does not convey the impression of having been anything like the scene of an intense aboriginal life. On the contrary, the evidence such as it is suggests merely a region of transit, one to be passed through rather than to be lingered in for any length of time.

In explanation of this condition of affairs, the fact is to be emphasized that this strip of country was intermediate between great prehistoric centers, viz., on the north, some fifteen miles upstream, that at Stockport and, still farther north, that near Hancock, at the confluence of the East and West Branches of Delaware River, and on the south, about fifteen miles distant, the old Indian town of Cochecton.

Much frequented aboriginal thoroughfares, outlasting in part at least the exodus of the Redman and used by the earliest colonists, approached the river near these villages, namely, the portage path from the Great Bend of the Susquehanna to Stockport, New York, and the Wyoming-Cochecton path across the hills of Lackawanna and Wayne counties, Pennsylvania. In addition to these, there doubtless existed hereabouts many a secondary trail, one of which wound along Delaware River, traversing this region, probably on both its shores, with wading places here and there, permitting him to cross from one side to the other, wherever travel was easiest.

THE LAY OF THE LAND

It will serve the purpose of this disquisition to give a description, as succinctly as may be, of the physiography or surface features characterizing the seven-mile zone of Delaware River Valley between Kellam's Bridge and Abrahamsville. Beginning at a point opposite the mouth of Beaver Creek, in New York State, there is a river bottom, stretching down stream for more than a mile to the mouth of Little Equinunk Creek, which flows in from the west. South of it, there loom, close to the shore, steep rocky slopes, about a mile long, that gradually flatten out, terminating in a tract of comparatively level land north of the mouth of Cooley Creek, another westerly affluent of the Delaware. Still farther downstream, the mountains again abut on the river for more than a mile, only to fall back abruptly, giving rise to an extensive piece of bottom land, half a mile wide by nearly two miles in length. The remaining three miles of this part of the valley as far south as Abrahamsville are through rough territory, with the flanking hills, here almost fifteen hundred feet in altitude, hugging the river, with no intervening flats of any size. It remains to be said that the minimum elevation of this section is 800 feet above the level of the sea and that the river is more than three hundred feet wide.

THE OPEN ENCAMPMENTS

We shall now pass in review the aboriginal stations noted within this section of country on the Pennsylvania shore of the river, for those on

the opposite bank, in New York State, will be omitted from consideration.

The most northerly of the Indian camping grounds occurred, as already intimated, on the bottoms immediately north of the mouth of Little Equinunk Creek, near Kellam's Bridge. Its exact position was on the elevated field bordering the river close to the creek. Stray artifacts, lost or discarded, have also been picked up all along the level expanse of the river valley as far as a point opposite the mouth of Beaver Creek (see map). Specimens from this locality, such as arrow points, consisted mostly of gray chert.

The next site lay on the flats below the junction of the Delaware with Cooley Creek, opposite Hankins, New York. This spot as well as the foregoing had been assiduously gone over by curio hunters, who found here, along with arrow points, quite a few agricultural tools like pestles, hoes and corn grinders, denoting the Redman's cultivated fields. Here, too, chert appears to have been almost exclusively employed as raw material for the smaller stone tools.

A quarter of a mile downstream from this site an earthenware jar of aboriginal type was extracted out of the steep hillside many years ago, when digging for sand. From information received, it was of Algonkin make, exhibiting a pointed bottom and fabric or cord-markings.

As might have been expected, the most important sites hereabouts were on the large river bottoms, locally named the Pine Flats. They are about twelve feet above the river but separated from it by a low flood plain. Ever since this land was cleared for cultivation, about a century ago, artifacts of various kinds have been plowed up, indicative of the Redman's whilom presence.

The upper part of this tract is hummocky, with sandy knolls and low ridges. On the top of these, relics were once fairly abundant, yet today there is nothing left but occasional chips, hinting at the manufacture of tools.

Much more desirable camps were provided by its lower portion, which is generally level and quite free from rocks. Here there seems to have been a cluster of small sites as revealed by the concentration of remains in certain spots, though otherwise they occurred scattered for something like a mile. Finished objects have been found by the hundreds, among them pestles and hoes. It may therefore be supposed that the savages cultivated some of this ground antecedent to the coming of the white man. The fragmented materials still littering these fields, bespeak, as before, the predominant use of chert for the fashioning of

arrow points, together with some flint, quartz, jasper, slate and argillite. No signs of prolonged occupation were afforded by any of these sites. Presumably they were visited only by fishermen, anciently haunting the banks of the Delaware.

THE FOUR ROCK STATIONS

These sites occur at the easterly base of the mountain. They are in pairs, that is, two of them are opposite the center of Pine Flats, half a mile west of the river, and the others, three miles downstream, lie just above the mouth of Rock Run, a small brook debouching into the Delaware, a mile and a half north of Abrahamsville. The latter are within easy reach and in plain sight of the road skirting the foot of the hill, while the Pine Flat shelters are hidden among the jagged rock outcrops, some distance up the acclivities.

The fact of there being four of these coverts in an area so limited cannot but be surprising when contrasted with the small number of open encampments noted. Usually, their ratio of occurrence within mountainous districts, where the former are relatively most numerous, is about one to fifteen. However, the nature of the local rock, which is sandstone, yields readily to atmospheric agencies, that always operate in wearing down the high places and sculpturing out every kind of formation, including caves and shelters. The Indian, on the other hand, was ever prone to avail himself of these natural coverts if attractive enough.

THE PINE FLAT COVERTS

A little way up the flank of the mountain, about thirty feet above the flats, there is a weather-worn rock ledge that is deeply undercut at its base so as to form a shelter some eighteen feet long. It is made up of two compartments dissimilar in size and outline (see Fig. 8), that to the left having an overhang of some ten feet, while that to the right is fully fourteen feet deep owing to a cavity or chamber of square shape penetrating about four feet into the rear wall of the cliff. The impending roof is high above the floor except toward the left, where it slants down to where there is a heap of detritus close to the inner wall. The covert faces east overlooking the Pine Flats.

Test holes were dug both in the hollow recess just referred to and in the space in front of it near the line of shelter. The dirt covering the floor consisted of coarse gravel mixed with stones and was apparently undisturbed. Nothing assignable to the aborigine came to light though the excavation proceeded to a depth of twelve inches and more. It was only when digging a trench through the left-hand portion that

the first signs were encountered. These were in the shape of potsherds, coarse-grained and faintly cord-marked, lying about four inches below the surface. Additional fragments, some of them rim sherds, were found at a still lower level, embedded in a soil that was slightly discolored from its admixture with ancient charcoal.

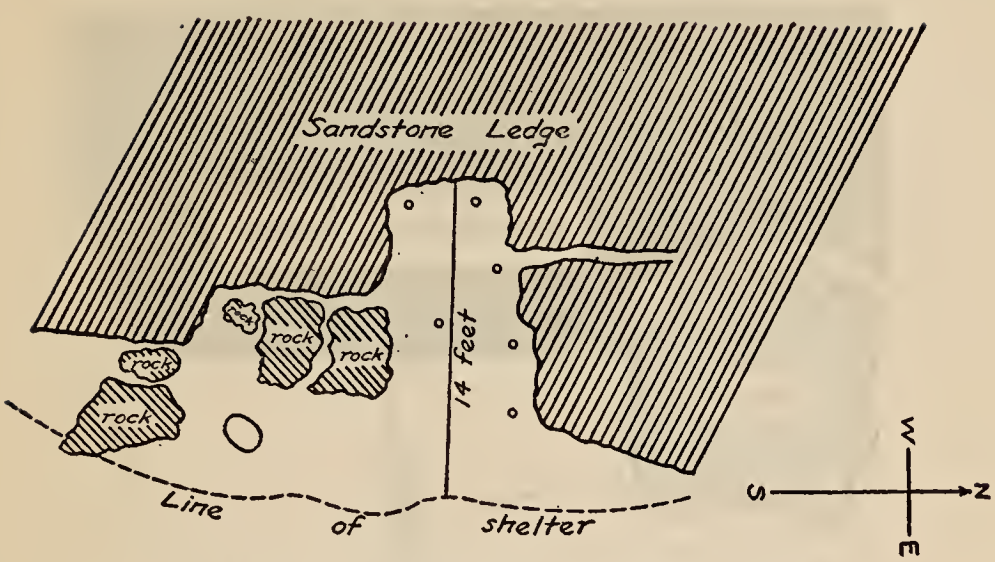
All told, about two hundred pieces of pottery were recovered, some of them inhumed as deep as fifteen inches. Being identical in thickness, color and material, they apparently were the remnants of a single large jar, which had been placed, it seems, in a hole dug for it. The spot was circumscribed and somewhat circular, having a diameter of about twenty inches. Probably it was a firepit for the soil within was of a darker hue than the surrounding débris. Apart from the sherds, which were of Algonkin ware, it contained a couple of deer bones, a crude hammerstone, superficially pitted, and the lower half of a notched argillite point. Chips were entirely absent. Obviously, this shelter saw few visitors and these came presumably from the fishing camps on the Pine Flats.

The second covert (see Fig. 6) lies much higher up the mountain slope, probably one hundred and fifty feet above the flats, almost directly behind the first, and it also faces east. Though originally it may have been a fine rock house, there is little left of it today, it having fallen prey to the activities of the white man who operated a quarry in its immediate propinquity about thirty years ago. Having, moreover, been used at that time as a foundry or blacksmith shop, most of its dirt-covered floor had doubtless been removed or completely disturbed. However, examination of the débris revealed, quite unexpectedly, a deeply notched arrow point of flinty material and more than an inch long.

As water is nowhere near this covert and probably never was, it could not have been a desirable place, to say nothing of the arduous climb up the rough and rock-strewn slope.

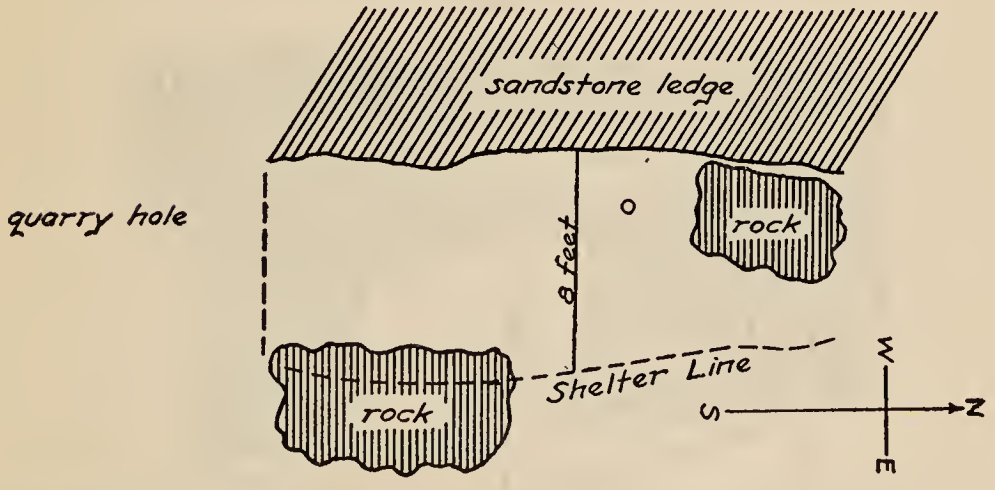
THE ROCK RUN SHELTERS

Considering their favorable position near the shore of Delaware River, the two Rock Run stations should have been prolific in aboriginal traces, testifying to frequent occupation. Such, however, was by no means the case, for the archæological harvest was scant in regard to quantity and variety alike. Yet, one of them was quite rich in such remains when compared with the other one which contained very little, in fact, just about sufficient to identify it archæalogically.



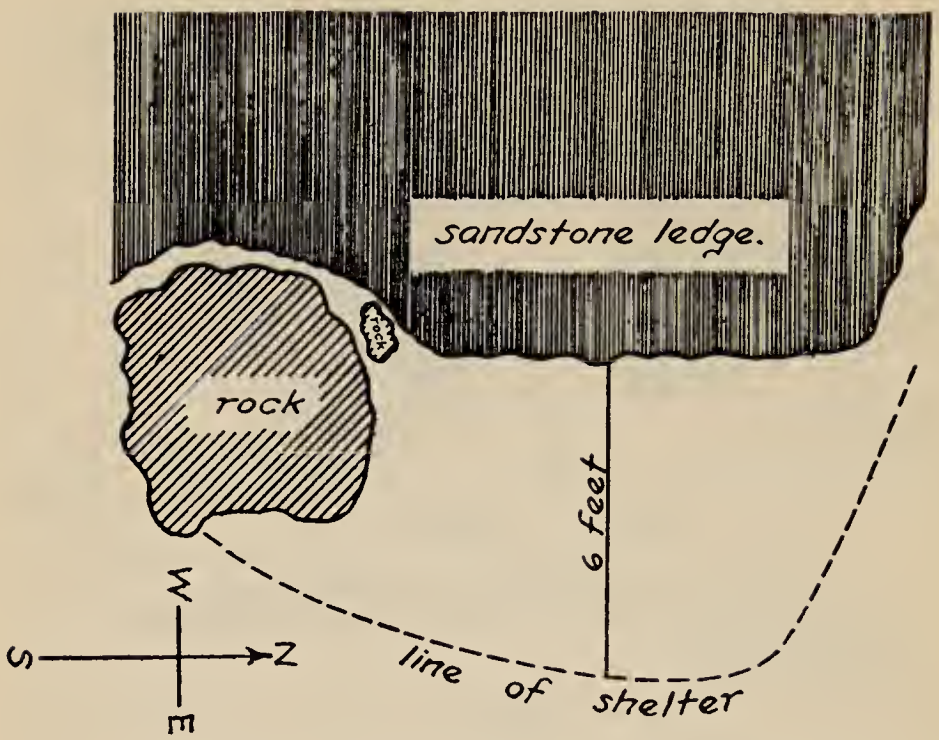
Ground plan of Pine Flat rock shelter, lower one, on Delaware River, Wayne County, Pennsylvania.
Test holes. ° ° °
Fireplace. ○

FIG. 7



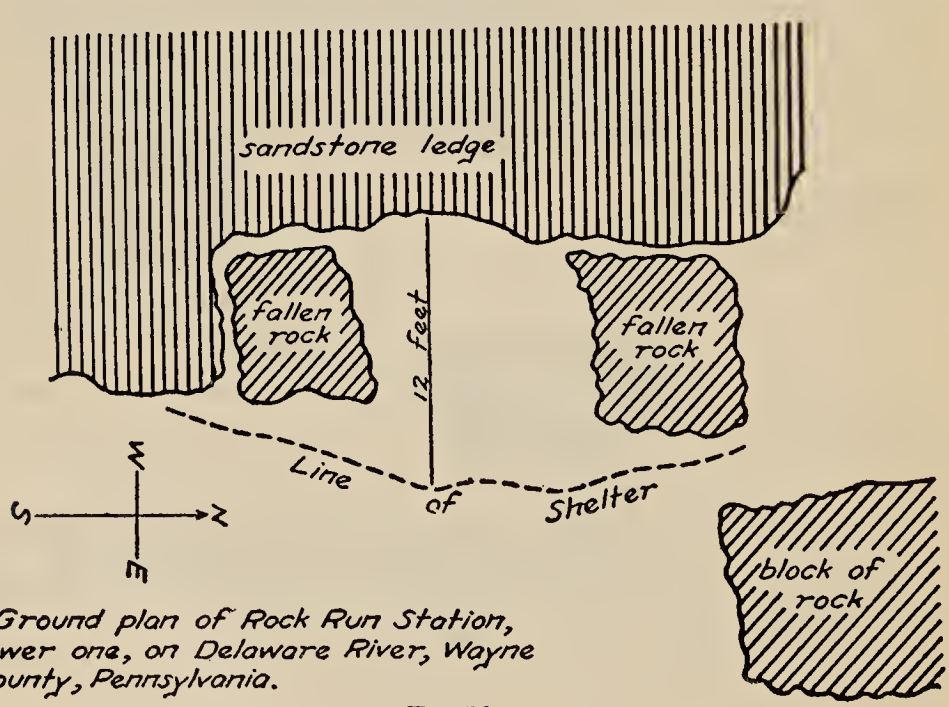
Ground plan of Pine Flat shelter upper one, on Delaware River, Wayne County, Pennsylvania. Place where arrow point lay ○

FIG. 8



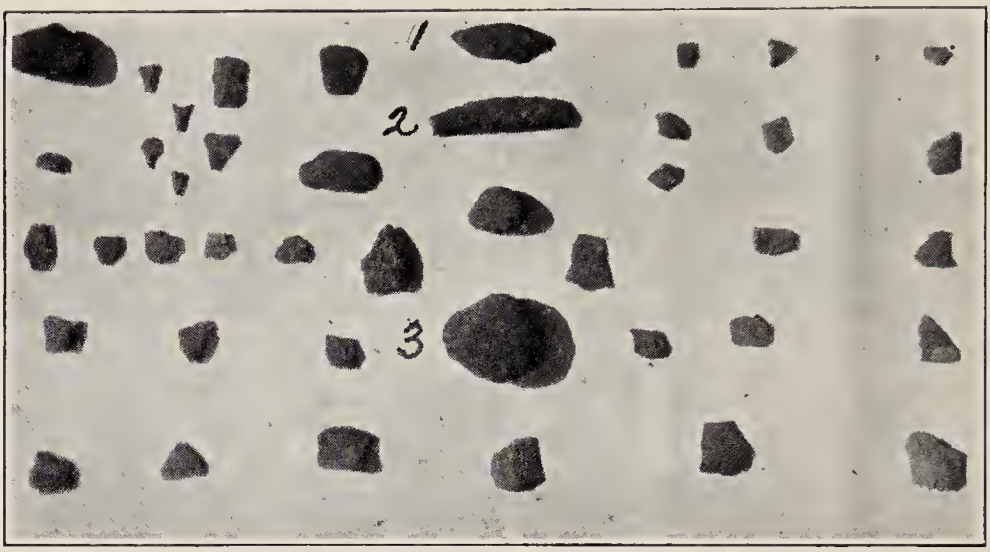
Ground plan of Rock Run Station, upper one, on Delaware River, Wayne County, Penn.

FIG. 9



Ground plan of Rock Run Station, lower one, on Delaware River, Wayne County, Pennsylvania.

FIG. 10



Specimens from Rockwood Shelter, Forest Lake Park, Pike County

Rock Run Shelter, Wayne County

THE LOWER COVERT

Being structurally superior and nearer the river, this place (see Fig. 10) proved the more important of the two. It is a large cavity or niche, some twelve feet deep by fifteen feet wide, at the base of a twenty-foot sandstone ledge. Its roof is about twelve feet above the floor on the outside but less than nine feet near the inner wall. This would have made a good-sized shelter but for a couple of big blocks of rock, each several tons in weight, that obstruct the space available for use to the right and left, reducing it to a width of no more than nine feet, without, however, diminishing its depth. A huge mass of fallen rock to the right, a few paces away from the cliff, serves to afford additional protection.

The shelter opens eastward overlooking the Delaware. Its floor was strewn with hundreds of rocks, some of them weighing as much as two hundred pounds, all of which had apparently broken off the face of the cliff. Under these circumstances digging was practically out of the question and the task of exploration resolved itself into a process of prying loose the rocks that often were firmly wedged together with comparatively little earth in between.

Having cleared away this débris to a depth of a foot or so, there came into view, three inches below the surface, a quantity of bones, belonging to deer, together with a few pottery fragments. Many more bones were found, probably not less than a thousand, embedded in a darkish soil mixed with numberless stones. Here and there the trowel laid bare little piles of fresh water mussels, all badly fractured and decomposed. A small arrow point of gray chert and chips of the same material were also noted scattered through the deposits at various levels.

A fireplace appeared to extend along the front of the shelter, indicated by layers of charcoal and ashes reaching to a depth of some twenty inches. Embedded within were numerous bones, charred by fire and cracked for the marrow, along with cord-marked potsherds and some chips. Since the culture deposit seemed to continue beneath the two fallen rocks to the right and left, we may suppose that they had dropped off the roof after the Indian's departure. A deserted quarry being close by, it is indeed altogether likely that they had become detached from the ledge, consequent upon the blasts there set off.

LIST OF OBJECTS FOUND

The cultural material unearthed under this rock was as follows:

A small arrow point, of gray chert, with the stem broken off.

A crude scraper, plano-convex, of smoky quartz.

Scores of chips, almost exclusively of gray chert.

Some fifty potsherds, plain or fabric-marked, suggesting the breaking up of at least three jars. The cord-markings displayed were quite different from those at the Pine Flat shelter.

Many hundreds of bones, mostly of deer, along with one bear tooth, one tooth of a catamount or mountain lion, a fragment of a wolf's jaw with first molar, pieces of the carapace of the box turtle and fresh water mussels and, last but not least, a crude awl, made from a deer bone split lengthwise.

From the evidence extant we may infer that this station was but seldom visited notwithstanding the fact that it presumably lay near a trail, once skirting Delaware River.

THE UPPER COVERT

This place is within earshot of the foregoing, a short way up a slope to its right, at the foot of a low ledge. Its dimensions are eight feet long by six feet deep, with a roof some eight feet above its floor. The dirt composing the latter was overlain by several inches of vegetable mold, underneath which was a deposit of dark soil mingled with stones. Digging a trench along the rear wall disclosed what seemed to have been an ancient fireplace (see Fig. 9). It yielded a leaf-shaped blade of argillite, three inches in length, possibly used as a scraper or knife, a few cord-marked potsherds and some tiny deer bones. All this lay buried from between three to ten inches below the surface. As this spot had evidently been the site of a blacksmith shop, there is no telling to what extent, if any, its subsoil had been disturbed.

The level fields between the rock shelters and the river, north and south of the mouth of Rock Run, had evidently been the site of fishing camps, since netsinkers together with other remains were once fairly common hereabouts. The much more extensive flats across the river, in the State of New York, have likewise yielded numerous artifacts, testifying to frequent occupation and distributed over what seems to have been a cluster of sites, dotting the river banks for more than a mile. As under normal conditions the river here is quite shallow in places, it may often have been forded by those who anciently invaded this region.

CULTURE OF THIS REGION

Although the author cannot claim to have seen more than a small proportion of the prehistoric specimens of this area, he is convinced, from what he observed, that they belong to the Algonkin type of material culture. Deviations from this type are not lacking, to be sure,

shown most strikingly by pottery remains, many of which exhibit purely Iroquoian patterns, decorated as they are with incised lines, running parallel and oblique, as well as revealing the broad raised collar and constricted neck so often distingushing the ware of the Six Nations.

Further, the fact that many celts have here been gathered, to the well-nigh total exclusion of tomahawks, is also highly suggestive of the potency of Iroquoian influence. Yet, apart from these intrusions of Iroquoian objects, varying greatly in different localities throughout the Algonkin territory, the primitive art of the region in question is altogether Algonkin and, moreover, it is identical or homogeneous with that of the upper river valley at least as far as it has been explored, i. e., as far north as Hancock, as well as with that of the country lower down.

As for the Indians that once roamed throughout this section, they may have been Cushetunks, a small clan of the Munsee division of the Lenni Lenâpé, who, from all accounts, had their headquarters near what is now called Cochecton, fifteen miles downstream.

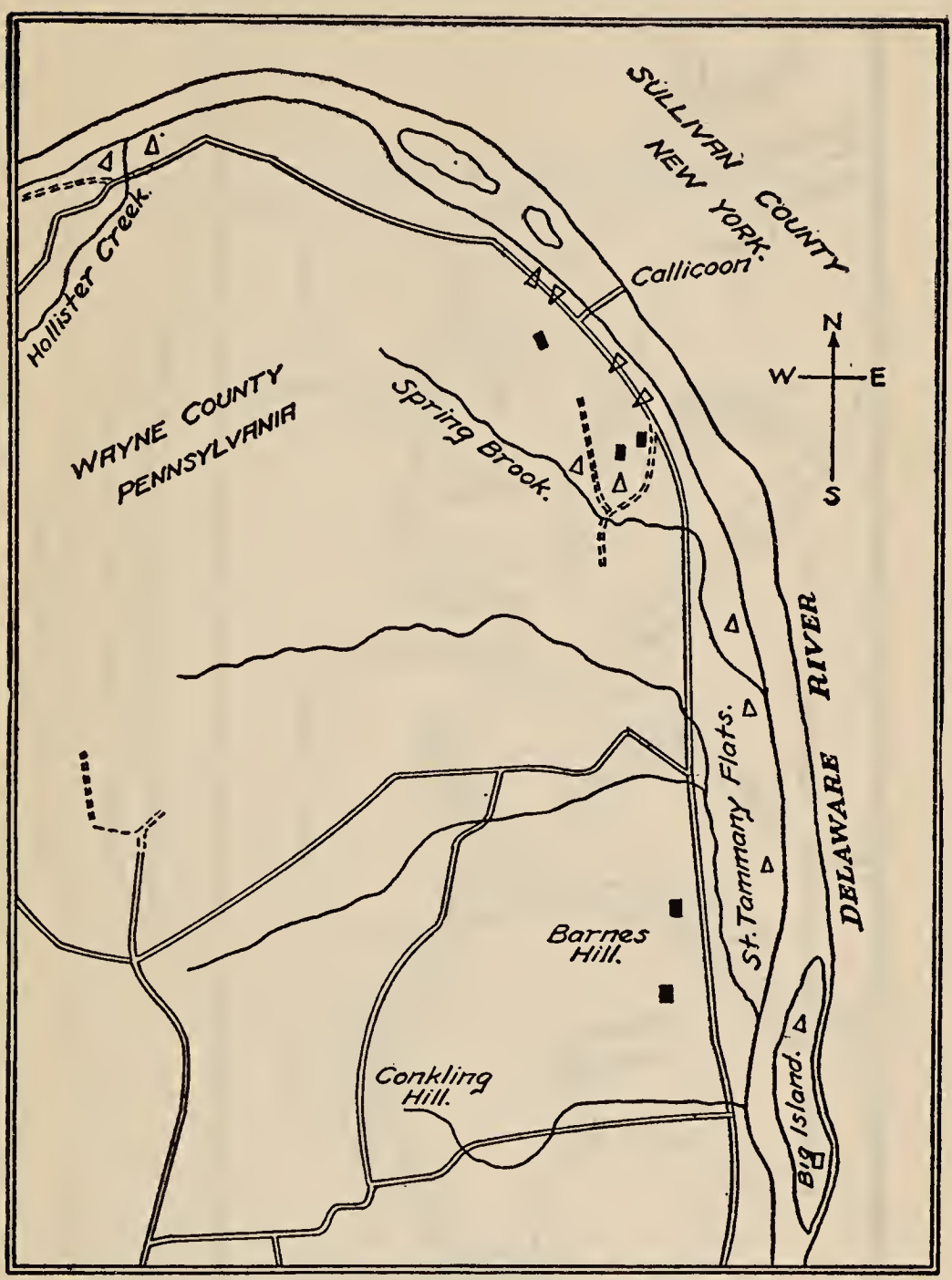
INDIAN SITES IN DELAWARE RIVER VALLEY BETWEEN ABRAHAMSVILLE AND NARROWSBURG, WAYNE COUNTY

The section of the valley between Abrahamsville and Narrowsburg proved to be one of exceptional archæological significance. Not only does it abound in ordinary camp sites, but there are here certain reminders of Indian times such as are seldom encountered elsewhere. It is, moreover, replete with historical associations of the time when the first white man appeared upon the scene, about the year 1753; rich in stories of frontier warfare, of Indian raids and massacres, of attacks upon forts, erected at strategic points for the protection of the pioneers.

Physiographically, it is a picturesque stretch of country, with the Delaware pursuing its sinuous course between rocky hills that in places rear their rugged heights almost from the water's edge, their flanks deeply trenched by boulder-strewn and rapid-flowing streams. Here and there, the mountains draw back far enough to make room for level tracts of alluvial soil, littered with the vestiges of a prehistoric time, while the beetling cliffs, dominating the valley, afford mementoes of quite another sort, to wit, the natural coverts or rock shelters, the cultural remains of which supplement in no small degree those of the river camps, by shedding additional light on the life of the genuine American. (See Chart.)

On this sixteen-mile long narrow strip of territory, comprising a few outlying localities a couple of miles from the river, there were located twenty-three camp sites, at least one village site or town, seven rock shelters and three aboriginal cemeteries. They were quite evenly distributed according to the lay of the land, with the exception of an area immediately south of Callicoon bridge, where there was a considerable massing of sites, stretching some two miles downstream as far as the Big Island, opposite which an additional cluster of stations was found. (See large scale map, a mile to 3 inches.)

An aboriginal burial place is said to be on Steve Mitchell's farm, at Abrahamsville. It lies in a depression on the southwesterly slope of a hill, at an altitude of 1,200 feet above sea level, about a quarter of a mile north of the road, skirting Hollister Creek. Human bones, it is said, have been repeatedly uncovered either after heavy rains or when digging in the soil. Encampments were identified at the mouth of Hollister Creek, on both its banks and close to the river. As is usual with

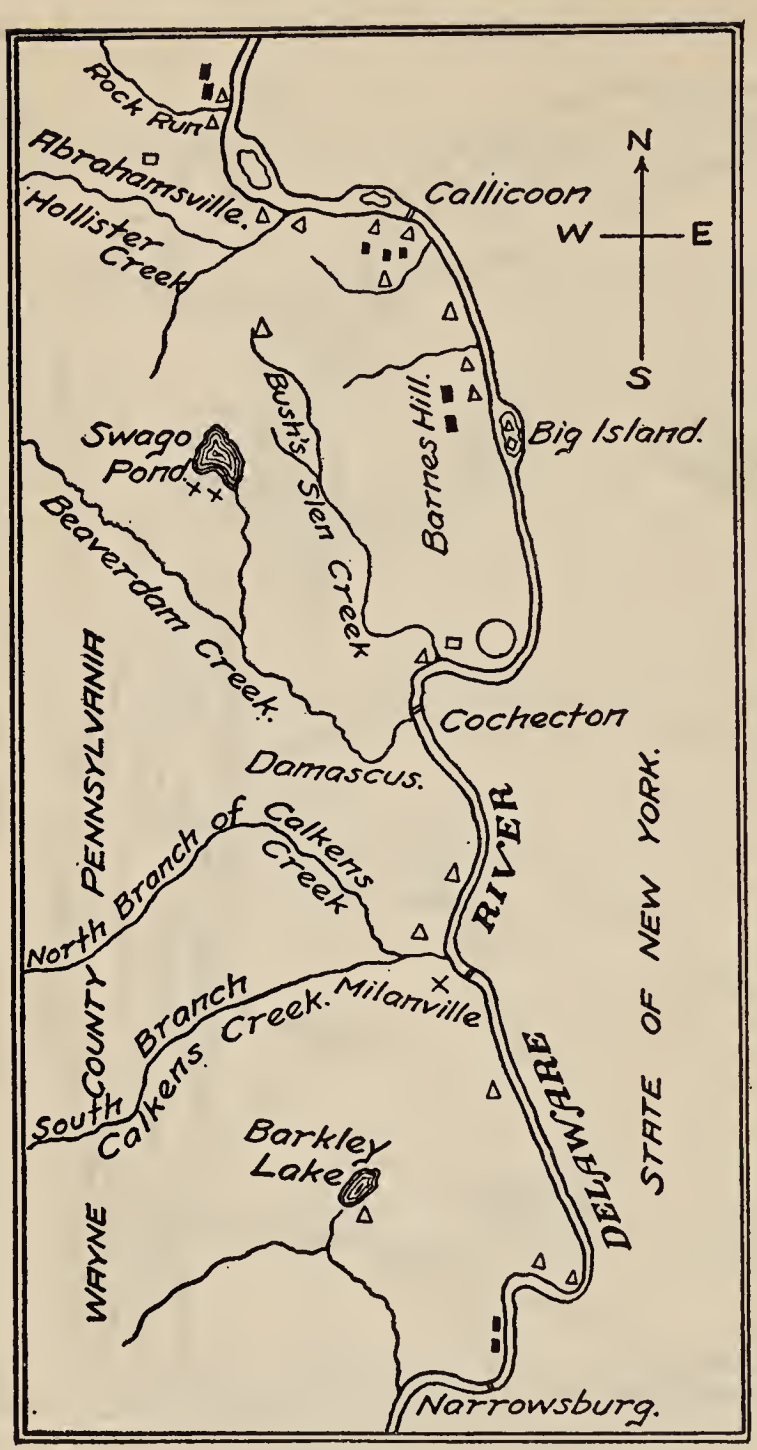


Scale: 1 mile to 3 inches.

Map of Callicoon and vicinity showing exact site of camping grounds, rock shelters and burial place.

△△ camping grounds. ■■ rock shelters. ▭ burial place.

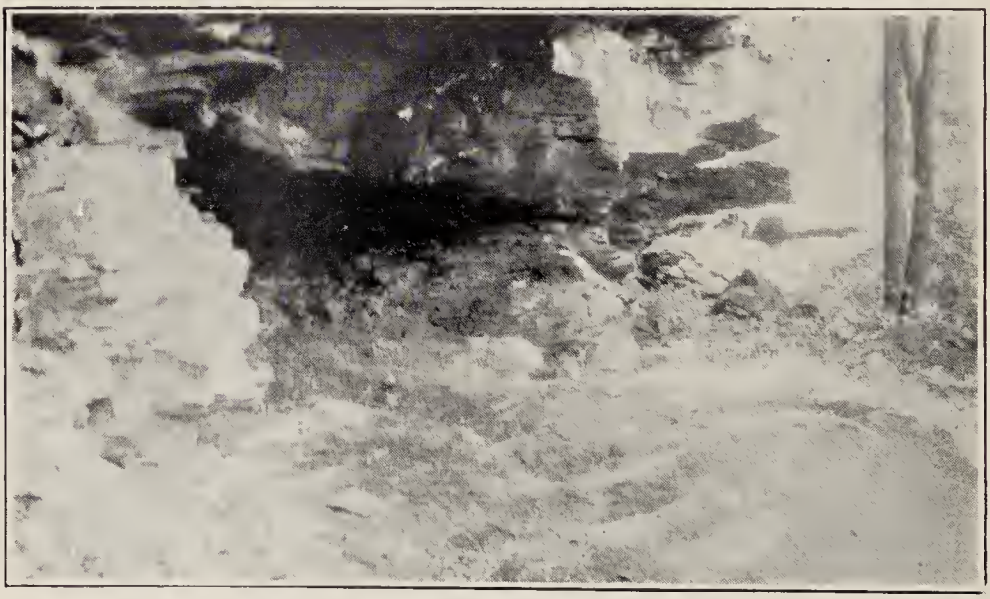
FIG. 11



Delaware River valley between Abrahamsville and Narrowsburg, showing Indian sites in Wayne County, Pennsylvania.

FIG. 12

Callicoon, Wayne Co., Pa., Lower Shelter, 1/3 Mile South of Callicoon Bridge



Rock Shelter at Callicoon Bridge, Wayne Co., Pa.

sites of this kind, a quantity of netsinkers of flat, oval shape, notched medially or at the ends of their small diameter, have here been picked up, denoting a place where the redskin was wont to angle. That an ancient path followed the banks of Hollister Creek may be confidently assumed.

For a distance of a mile downstream there is a total absence of tokens of prehistoric habitations, the reason being that the river front does not afford any spots suitable for camping or such as would have appealed to aboriginal requirements. Not until we reach Callicoon do we enter a district of intense occupation. Just above Callicoon bridge occurs a group of sites on the high sandy banks of the river. The highway to Abrahamsville, cutting through their very center, and the cottages on one side of it, have all but extinguished these river encampments.

ROCK SHELTER FACING CALLICOON BRIDGE

Almost directly opposite Callicoon bridge, high upon the craggy hillside or more than 200 feet above the river, there is a good-sized rock shelter, which upon examination proved to have been visited by the indigenes. It is a deep cavernous recess at the foot of a long cliff, the upper part of which juts out some twelve feet, being nine feet above the floor along the shelter line, but less than five feet at the rear wall. The protected portion is more than forty feet in length, yet most of it is encumbered with detritus or fallen rock débris, leaving only a small section available for camping. In common with all the rock stations within this territory it gives upon the east, receiving the benefit of sunlight only in the early morning and being in the shade the rest of the time. No water supply is near at hand save a low-lying patch of swaly ground, where water collects after heavy rains.

Even the most promising part of the covert was seen to be filled with flat rocks or slabs of sandstone, embedded in dark-colored soil and covering most of its floor. Although a considerable space of this was dug up, nothing came to light except a solitary chip of chert, lying at a four-inch level just below the rim of the impending roof. On excavating toward the rear wall, however, a well-defined firepit was laid bare, containing scores of bones, for the most part of deer, along with a couple of bird bones, probably of wild turkey. This pit was about ten inches deep by two feet square and the dirt within was grayish black from admixture with ash. Some of the stones here showed the effects of fire, being smoke-stained and crackled. (See fig. 13.)

The interpretation of the culture refuse under this rock is simple. The single fireplace as well as the single chip suggest that this spot was

rarely visited. Although structurally it is a pretty good shelter whereunder to camp, the fact that drinking water was not conveniently near could not but militate against its more general use.

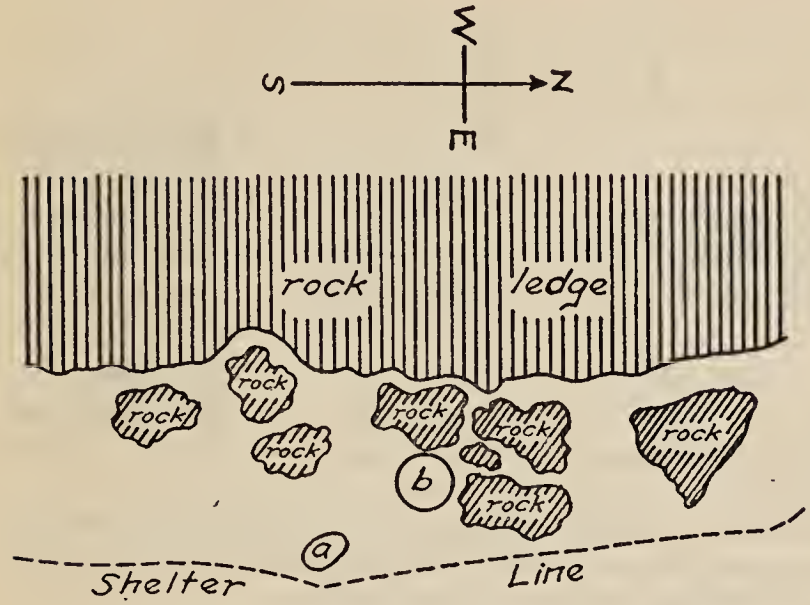
Down by the river there is a group of sites on the flats immediately below Callicoon bridge. While on the chart only two of these are marked, the evidence even today is such as to point to a succession of camps. In fact, camp leavings are littering the river banks for a distance of a quarter of a mile south of the bridge, where the flats terminate. Here, too, the changes wrought by the river road and the houses alongside of it have been responsible for the annihilation of most of the surface indications. Obviously therefore, the sandy shores of the river north and south of the bridge were much resorted to by the savages, the numerous camp sites apparently having lain so close together as to merge the one into the other.

South of this group of stations the mountain hugs the river for more than a quarter of a mile with not a place along its base desirable for a camp. Yet, as though to make up for this, there are two small rock shelters on its rock-ribbed slopes and, moreover, two sites on the level fields atop. The lower one of these stations is a few steps above the dirt road, which here branches off the river road, ascending the hill to the upland fields just mentioned.

At this spot there is a sandstone ledge of Upper Devonian age, which is the characteristic rock of all this region, the base of which has weathered away in such wise as to give rise to a covert spacious enough for camping. The superincumbent roof, extending far out, is wedge-shaped and tapers to a point about five feet and a half above the floor along its edge but slanting down to less than four feet near the back wall. While its total length is nearly twenty feet, its maximum overhang is ten feet. It opens toward the east and is some fifty feet above the river. (See ground plan, fig. 14.)

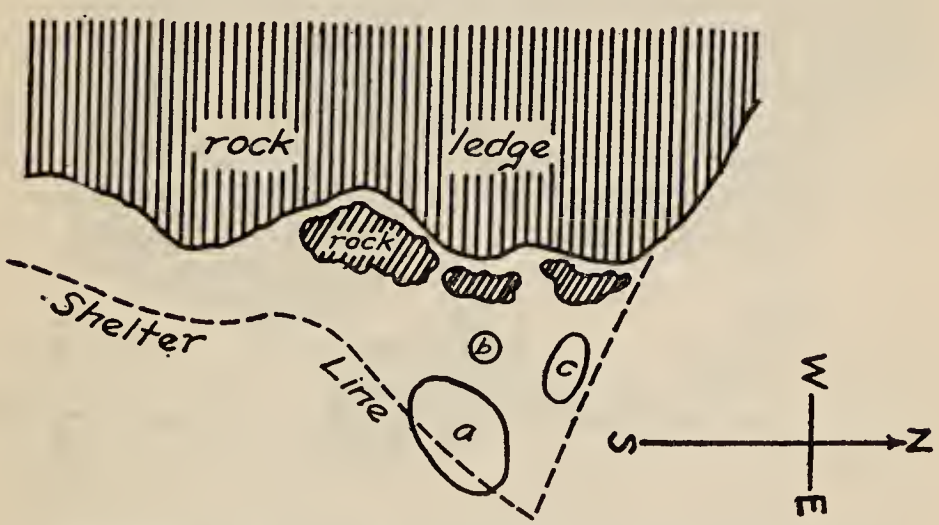
The top soil under the roof consisted of rubble mixed with sand, giving no intimation that the Redman had ever been here. On digging a trench beneath the edge of the overhang, a shallow fireplace was struck, two inches below the ground. It was seen to be about two feet square and to have a depth of no more than four inches. All it contained were a few tiny fragments of deer and bird bones, a couple of chips, of chert, also very small, and some unio shells, broken up into pieces.

A second trench to the right of the sheltered space brought to light two potsherds of a dark-brown color, decorated with oblique lines. One of these displayed a crude sketch of a human face, eyes and mouth being indicated by horizontal slits. These sherds evidently belonged to



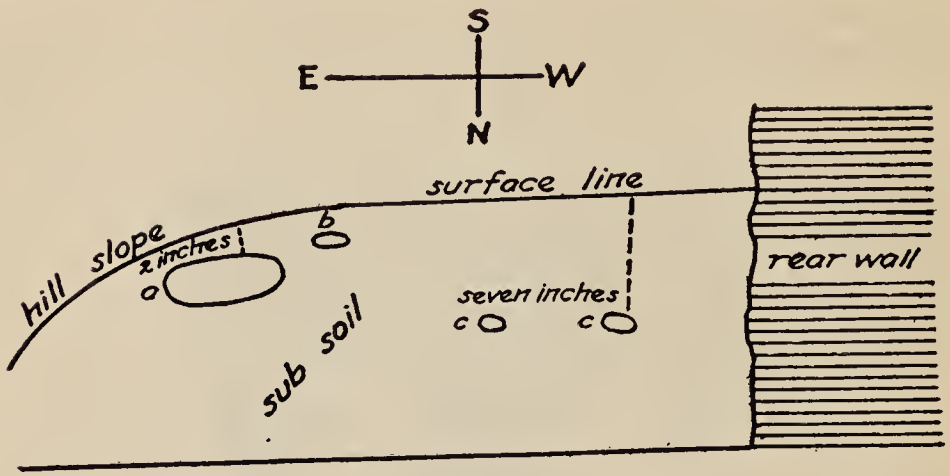
Ground plan of shelter opposite Callicoon Bridge, Callicoon, Wayne County, Pa.
a position of chip.
b position of fireplace.
Both are in centre position, about 10 feet square

FIG. 13



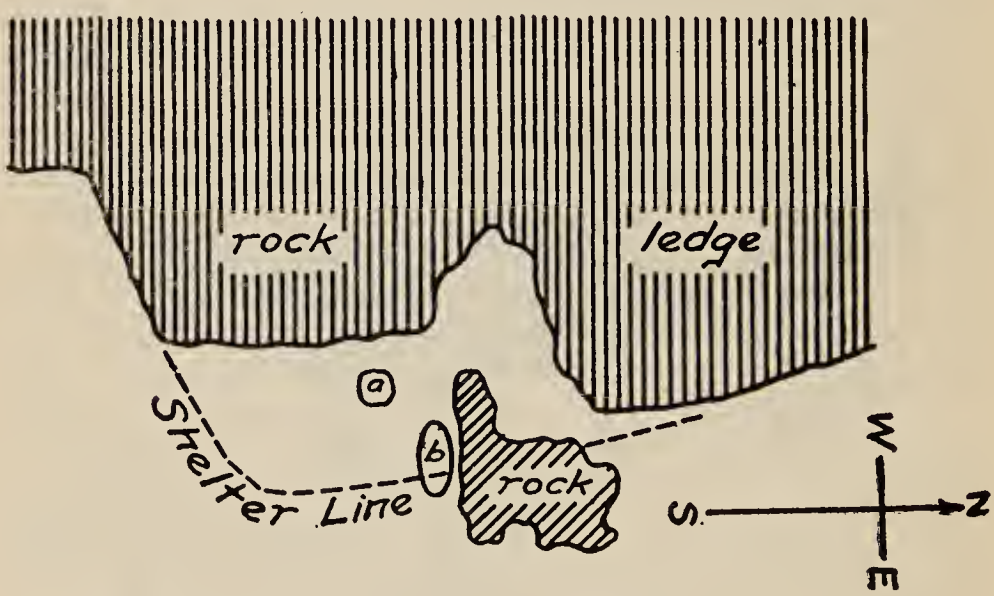
Ground plan of rock shelter, ⅓ mile below Callicoon Bridge, Callicoon, Wayne County, Pa.
Length about 20 feet, greatest overhang 10 feet.
a. fireplace.
b. position of mussel shells.
c. position of potsherds.

FIG. 14



Relative positions of fireplace a, mussel shells b, and pot sherds c, c, under lower rock shelter, ⅓ mile south of Callicoon bridge, Wayne County, Pa.

FIG. 15



Ground plan of "Indian Rock" shelter at Callicoon, Wayne County, Pa; about 14 feet long; overhang 10 feet. a, b position of potsherds.

FIG. 16

two different jars and appeared to be very old, being in truth petrified or as hard as a rock. They lay seven inches deep, not together, but several feet apart. The character of these fragments hinted at Iroquois origin. (See fig. 15.)

In the middle of the shelter, i. e., between the fireplace and the rear wall, there was quite a quantity of fractured fresh-water mussels (probably unio fluviatilis). Some of them, less damaged than the others, were pierced in the center and they may therefore have formed part of an ornament or necklace.

The tale to be read from the culture refuse extant under this rock seems to be as follows: The firepit with its contents of bones betokens cooking and the partaking of a meal; the chips, there being so few of them, the fashioning of an arrow point or two, and the pottery pieces along with the perforated shells the quondam presence of squaws.

Yet another conclusion may be drawn from the observed difference in level at which the objects were inhumed. Since the two sherds occurred at a depth of seven inches in what was apparently undisturbed soil, whereas the fire place and associated shells lay quite near the surface, we may presume that the former are to be referred to a more remote time than the latter, that, indeed, centuries may have elapsed between their respective depositions. This, of course, is assuming that there were only two visits to this place, viz., first that of a squaw, coming hither with the two vessels, each of which became damaged, and, long afterwards, that of a hunter, accompanied by a female, kindling a fire and preparing food. That others may have camped here without leaving any traces is, of course, entirely possible. Still, whatever may have been the case, the paucity of the remains indicates that this rock was seldom occupied.

THE "INDIAN ROCKS" SHELTER

Some sixty feet up the steep acclivity, below the crest of the hill, there is a long outcrop of precipitous and badly weathered crags, buttressing, as it were, the upland fields back of them, known locally as the "Indian Rocks." While there are quite a number of cavernous formations along their base, only one of these afforded evidence of an archæological character.

The dimensions of this covert are fourteen feet long by ten feet deep and its roof is uniformly some ten feet above the floor from outer rim to inner wall. It fronts east and is more than a hundred feet above the river. Though carefully dug up, nothing was found but four potsherds, evidently fragments of two pots. Two of these, of Algonkin type, ex-

hibiting the so called herring-bone design, were near the rear wall to the left of the shelter at a depth of four inches; the other two, without any decoration, were alongside of a large block of rock at about the same level, three feet from the former and more to the right. Here there seemed to be faint traces of a firepit, extending down to a cavity under this mass of rock. As neither chips nor bones nor yet anything else referable to the savages was noted, all one can say by way of comment is that a squaw or two came along with the jars, stopping here for a while. The jars, becoming mutilated to the extent of the above four fragments, were subsequently taken away. (See fig. 16.)

THE UPLAND FIELDS

Vestiges of two camp sites, a few hundred meters apart, are on the level tract of ground directly north of a small stream, called Spring Run, on Martin Herrmann's dairy farm. Ever since these fields were cleared for cultivation, Indian relics have been turned up after each ploughing, notably arrow points and netsinkers. The former were, most of them, made out of chert, a mineral commonly employed throughout this territory, but among them the present author saw one that was manufactured out of yellow jasper and this showed a high degree of workmanship.

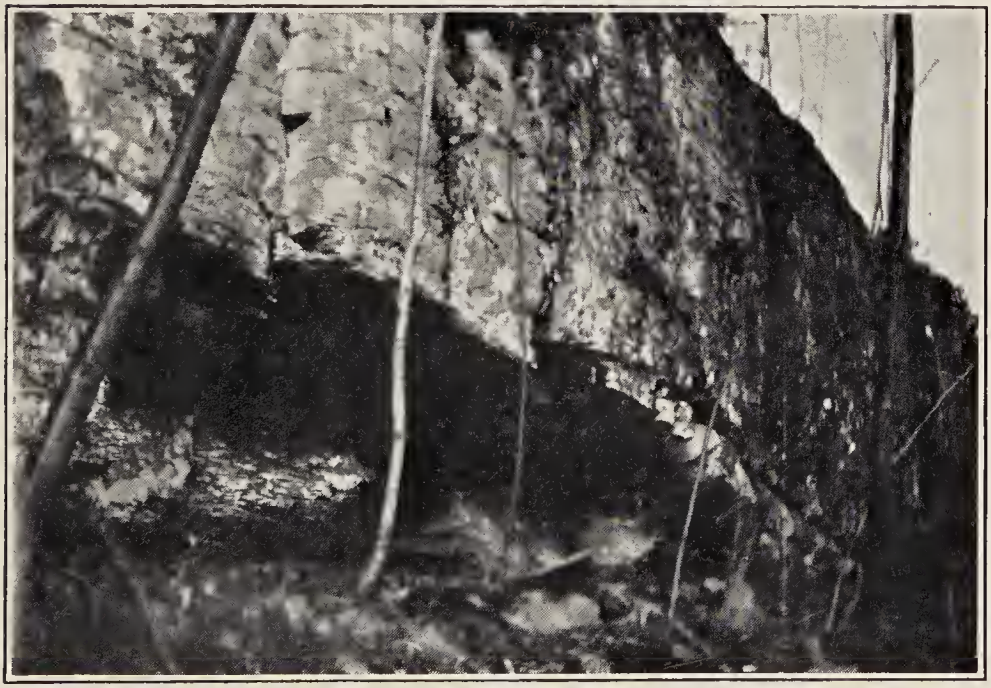
The circumstance that there are several fine perennial springs round about tended, assuredly, to attract the savages to this locality, about 150 feet above the Delaware. Spring Run, too, may have been an additional incentive, affording, perchance, good trout fishing. Though today an insignificant stream, owing to the cutting of the timber, but torrential at times after violent precipitations and again quickly drying up in the rainless season, it is certain that formerly, when all the land was heavily forested, it was not subject to such vicissitudes but carried a steady volume of water at all times.

ST. TAMMANY FLATS

Descending to the river to where the mountain falls back, we meet with extensive bottoms, the St. Tammany Flats, so called, less than a mile downstream from Callicoon bridge and about one-half mile distant from the upland fields. These flats are more than a mile in length by a quarter of a mile in width and, being fertile, have been under the plow for more than a century. That they were favored by the aborigine is clearly revealed by the abundant remains of his handiwork recovered therefrom in the past.

There is no longer a possibility of determining the number of en-

Rock Shelter Opposite Tammany Flats, Wayne County



High Rocks Shelter, Westcolang, Pike County

campments anciently situated here. It may suffice to say that the reminders of prehistoric days, in the shape of arrowheads, hammerstones, pestles, netsnikers, mortars and celts were once encountered all along this one-mile stretch of river bank, connoting, indeed, a score of sites, inhabited, to be sure, not simultaneously but rather successively through the lapse of many a century.

The agricultural tools, of which many have been found, indicate plainly, that, then as now, much of this locality was set aside for the arts of husbandry, that here the agriculturist of yore planted his maize, beans, pumpkin and tobacco. On the chart of this region only three sites have been mapped, these having been pointed out to the investigator as the spots where remains used to be most prolific.

Touching upon the designation of these fields as St. Tammany Flats, it is a corruption of the word Tamanend, once the name of a famous Lenâpé chief, living during the eighteenth century and supposed by students of local history to have concluded his days in this part of Delaware River valley. But more of this anon.

BIG ISLAND

Across the river from the lower end of St. Tammany Flats is Big Island, stretching downstream for about three quarters of a mile. Though belonging to the State of New York, it was deemed proper to include it in this discussion, forming, as it does, an integral part of the archæological complex of this area. Although a rather low-lying island and therefore occasionally flooded after prolonged downpours of rain, which nowadays have not infrequently a disastrous effect by reason of widespread deforestation, it probably escaped that fate in the past, that is, ere the balance of Nature had been tampered with. Then the indigene regarded it as a tract desirable for habitation, as is amply evidenced by the profusion of relics formerly found there. Chips and other camp refuse continue to be quite abundant particularly in the upper part of the island, as the present author had occasion to notice. Apart from this, Big Island has always been considered by local residents as having been the site of Indian burials, most of which are supposed to be near its center, for it is there that skeletal remains of undoubted Indian origin have time and again been turned up by the plow or washed out of the sand after a heavy rainstorm.

THE BARNES HILL ROCK STATIONS

Dominating St. Tammany Flats to the west lies Barnes Hill, 1,240 feet high. Its river-ward facing slopes are steep and extremely rugged,

being strewn with huge masses of rock and traversed by numerous cliffs, fissured and worn into grotesque shapes by the action of the elements. About one hundred feet above the highway, skirting the foot of the mountain, is a vertical ledge or rock wall, not less than a hundred feet in length, the lower portion of which deviates from the perpendicular or recedes inwardly far enough to form a recess twenty-five feet long by eight feet deep. (See fig. 18.) This ledge is a scant mile and a half south of Callicoon bridge and it opens toward the east at an altitude of 150 feet above the river.

The soil under this shelter was exceedingly rich in aboriginal refuse, yet it was all of one type, namely, broken pieces of earthenware. By actual count, 450 fragments of shattered clay vessels were dug up, representing what was left of more than forty pots. While most of these sherds were plain, scores were beautifully decorated with parallel incised lines, horizontal and oblique, as well as the chevron design of zigzag lines. Six of these, all broad collar pieces, exhibited highly conventionalized drawings of the human face, the eyes and mouth indicated by horizontal slits. Three of the latter showed the face surrounded by oblique lines, much like the chevron, and on one of them the face was across the angle of the collar. About one-fifth of these fragments, especially those with broad collars and ornamented with the human face, were highly reminiscent of Iroquois cultural influence, while the others were distinctly Algonkin.

In addition, there was recovered what may have been used as a small pounder or pestle, wrought from a suitable, water-worn, cylindrical pebble, and also a triangular sandstone pebble, the broad base of which had evidently been sharpened by the hand of man, being beveled, and as such it may have been employed as a cutting tool or celt. It is passing strange that bones, chips or other leavings were completely absent at this rock.

The bulk of the pottery remains lay concentrated at two spots, to wit, one opposite the middle of the shelter in the foreground, beneath the edge of the roof and beyond, and the other in the right-hand portion between the rear wall and some rock débris along the outside. None of the sherds lay exposed to view on the surface and it was therefore only by digging down about three inches that they were discovered. They were embedded in a mass of dirt and stones as far as twelve inches below the top. Piles of rock were scattered over them and though some of these may have dropped off the roof, one could not help thinking that they had been deliberately hurled down upon the pots by human beings, thus reducing them to fragments.

The evidence here presented for consideration admits, doubtless, of various interpretations. The present author is of the opinion that all these remains belong to a single horizon, that is to say, they were deposited or left at this place at one time. The question as to who brought them hither, may, perhaps, be answered by assuming that the savages camping on the nearby St. Tammany Flats were the owners and hiders of these vessels. Having wandered here to fish, possibly from some far away place, and having at length decided to go home, they selected this rock as a caché or hiding-place for their pottery, it being too cumbersome to lug through the wilderness, expecting, of course, to recover it on their return next season. If this be the correct explanation, probably all the pottery vessels—there being so many of them—that these folk owned, had been taken there for concealment.

But how are we to account for the missing fragments? With forty or more pots shattered, there must originally have been thousands of these sherds, whereas there were less than five hundred of them, that is, on an average only about twelve sherds for each pot, not nearly sufficient to reconstruct any of them. In fact, a close examination revealed that many of the broken vessels were represented by no more than two or three pieces.

THE LOWER BARNES HILL STATION

This station is some five hundred meters south of the pottery shelter and about two miles south of Callicoon bridge. It is high upon the rock-encumbered flanks of the hill, near its southerly termination, opposite the lower end of St. Tammany Flats. It also faces east. Being about 180 feet above the river, it is at a higher level than the preceding.

Subsequent investigation showed it to be of a totally different type from the former inasmuch as its culture contents, trifling though they were, can be assigned to male occupancy only, whereas the other place, yielding nothing but ceramic ware, had to be referred to female visitors, as set forth above.

As regards its general configuration, it lies at the base of a perpendicular massive cliff and it is fully fifty feet long by ten feet deep; while the great impending roof is about ten feet above the floor along the shelter line, whence it shelves downward to the rear wall to a height of six feet. Its floor is coarse gravel mixed with stones and it faces east or toward the Delaware. Immediately in front of it is a rough though quite level patch of woodland, crowning the top of a bench or terrace, which falls away in a ledgy slope in the direction of the highway, one hundred feet below.

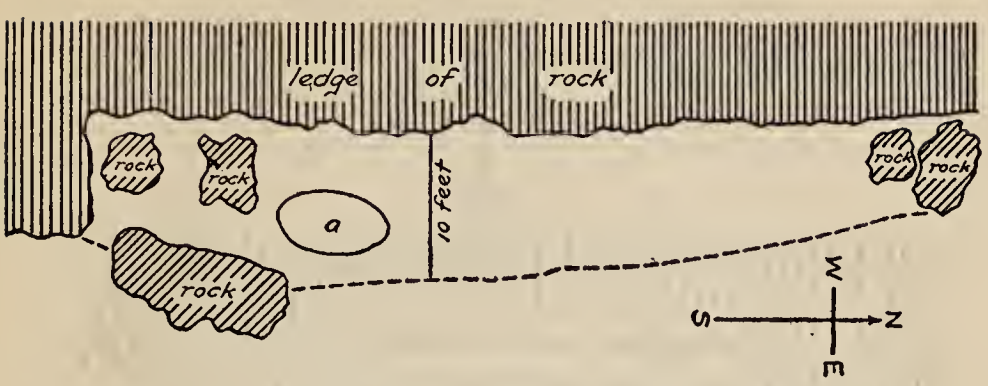
The left portion of this covert is well protected both laterally by the parent ledge standing out as a solid wall at right angles to the rear wall and partly in front by a great block of fallen rock, ten feet long, extending beneath the outer rim of the roof. To add still further to the desirability of this place, there is plenty of good drinking water within easy reach, for a stream cascades over a neighboring escarpment and a never-failing spring bubbles out from underneath a cavern close by.

Notwithstanding all these physical advantages, our rockhouse was to all appearance but little patronized by the copper-colored hunter. For one thing, there were no surface indications whatsoever, nor did the excavation of the dirt under its roof afford many telltale marks of his quondam presence. What little there was, occurred in a patch some six feet square in its left-hand compartment near the outside. (See fig. 17.)

Although dug up with meticulous care, nothing came to light save a straight-stemmed, lozenged-shaped scraper, two inches long, made out of argillite of the bluish variety; a straight-stemmed arrow point of cherty material, an inch and a half long; three chips of chert and another of black flint and, lastly, a single diminutive fragment of a deer bone. All these lay superficially buried at a depth not exceeding four inches. The dirt all about was discolored by fires, kindled no doubt centuries ago, denoting the site of a hearth.

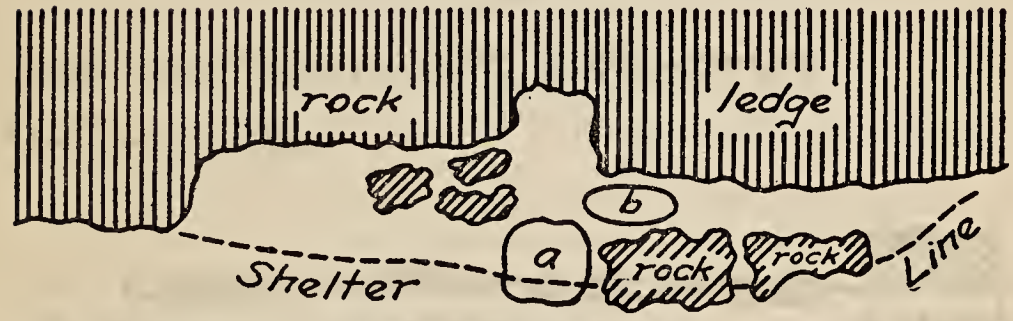
As for the piece of argillite, just spoken of, this mineral does not occur naturally anywhere within this territory and it had therefore been brought here, probably from Hunterdon County, New Jersey, where the aborigines for a radius of many miles were wont to secure their supply of it. And, to be sure, the savages would travel far and wide in search of flint or other suitable material. As already intimated, examination of the remaining section of this covert was attended with negative results, as nothing of a prehistoric type rewarded the efforts devoted to it.

Interpreting the evidence derivable from the vestiges extant, their scarcity leaves no room for doubt but that this place was rarely visited. The few flakes of chert and flint point to implement-making, viz., we may presume that here a couple of arrowheads were manufactured. The lone deer bone—and probably there were once many more of them, while others may have been overlooked—seems to betoken the preparation of food under the friendly rock, a presumption that tends to be borne out by the traces of the fireplace here noted.



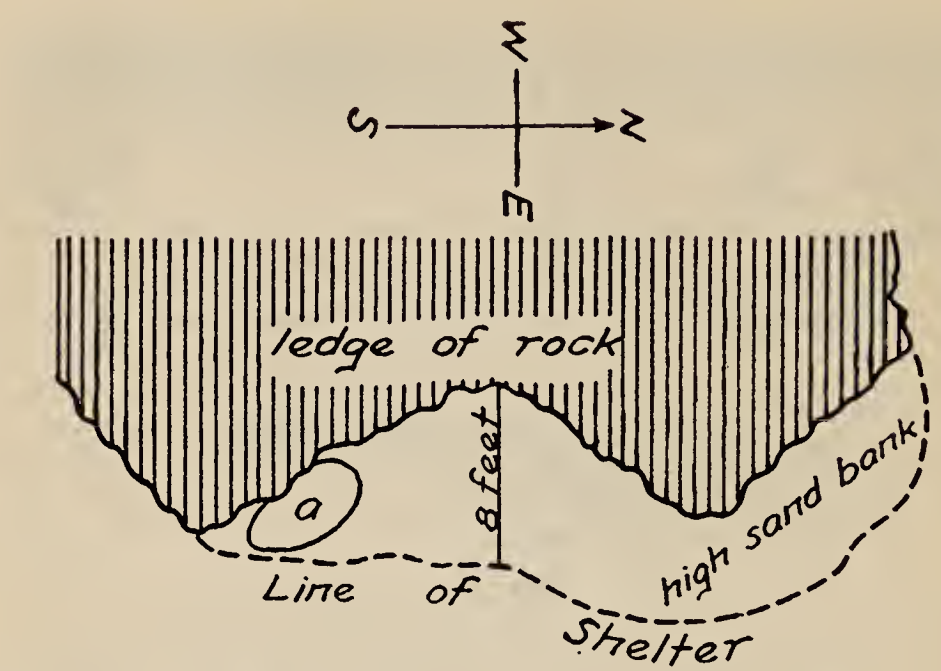
Ground plan of rock shelter on Barnes Hill, southerly one, 1½ mile south of Callicoon Bridge, Callicoon, Wayne County, Pa.
Length of shelter some 50 feet.
Roof projection 10 feet.
a = position of culture debris.

FIG. 17



Ground plan of Barnes Hill rock shelter northerly one, one mile south of Callicoon, Wayne County, Pa.
a, b sites of pottery fragments.
length of shelter. 25 feet.
maximum projection. 8 feet.

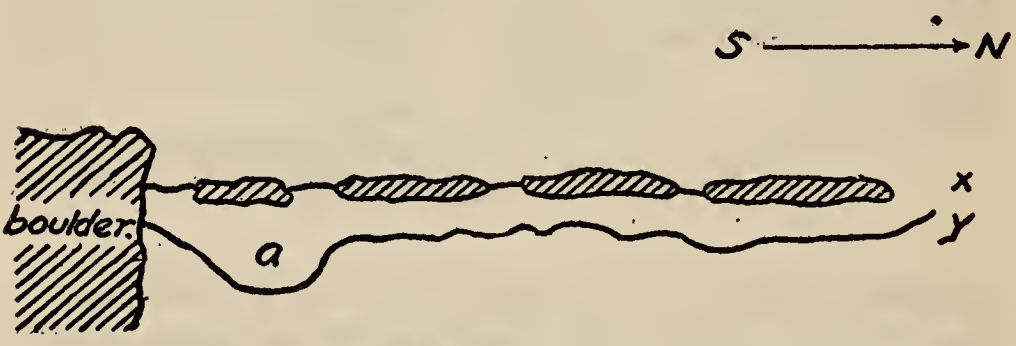
FIG. 18



Ground plan of Narrowsburg, Pa.
shelter, northerly one.
30 feet long. 8 feet deep. 20 feet above river. a. - Fireplace.

FIG. 19

Narrowsburg shelter, southerly one.



Cross section of trench along rear wall through firepit a.
x. Top layer of flat rocks.
y. Bottom of Indian culture layer.
a. Firepit.
Depth of pit overdrawn.

FIG. 20

NORTH OF DAMASCUS

For two miles south of St. Tammany Flats, on the Pennsylvania shore, the hills slope down to the water's edge, affording no spots suitable for camps. In spite of this, relics have been picked up all along the banks, bearing witness to the fact that the native American threaded his way through the tangled thickets close by the river, at the very foot of the hill.

A scant mile northeast of Damascus, i. e., at a point directly opposite Old Cochecton, New York, the river deviates from its hitherto southerly course, swinging westward for a mile in a wide, graceful curve. Within the loop thus formed, there is an area of broad bottom lands about a mile long by one-third of a mile across at its widest part and in the lee of the hills on the northwest.

According to reports, this particular locality was anciently much frequented, having been one of those places which the natives were wont to haunt, when roaming through the valley. Countless testimonials of their erstwhile sojourn hereabouts have been collected, embracing many of the rarer types of artifacts like complete pots, pipes and celts, not to mention hundreds of arrow points, scores of netsinkers and pestles.

Aside from the evidence supplied by the quantity and variety of these implements formerly found, tradition, handed down from the first white settlers of this region, invests this district with having been the site of a large Indian town, a village that was still being occupied when the pioneers arrived. While today the fields are all but depleted of these interesting tell-tale marks, chips and other refuse still occur abundantly.

A prehistoric burial-place is known to adjoin this old village site a short distance to the west of it, near where Bush's Glen Creek, misnamed Schoolhouse Creek on the modern topographic map of the Damascus quadrangle, debouches into the Delaware.

The following information is vouched for by Mr. Leslie Bush, a lifelong resident and direct descendant of the Bush family, early arrivals, who settled near the mouth of the creek, bearing their name. While digging a hole in the ground, many years ago, he encountered a thick layer of charcoal at a depth of five feet, beneath which lay an earthenware vessel of aboriginal handiwork. Again, his father is said to have come across chief Tamanend's grave, containing a large pipe bowl of clay and a thin silver plate, some three inches square and engraved on both sides with a tessellated or checkered design. It was undoubtedly because of its rare and extraordinary contents that the grave came to

be regarded as that of the old chief Tamanend. While the pipe is still in possession of the family, the present whereabouts of the silver plate are unknown.

It has always been believed in this neighborhood that Tamanend spent his declining years in this particular part of the valley and that his last resting-place was at the mouth of Bush's Glen Creek, not far from the Indian town. On the other hand, there are contradictory claims to the effects that the remains of Tamanend or Tamané, as William Penn spells his name, repose by the side of a spring run, emptying into the Neshaminy, less than four miles from Doylestown, in Pennsylvania, that is, at a place 150 miles distant from Damascus.

In this connection it may not be out of place to quote the famous missionary Heckewelder, who makes the following statement regarding Tamanend or Tammany: "Of all the chiefs and great men, which the Lenâpé nation ever had, he stands foremost on the list. Little is known of his real history. All we know of Tamanend is that he was an ancient Delaware chief, who never had his equal. In the Revolutionary War, his enthusiastic admirers dubbed him a saint, so he was established under the name of St. Tammany the patron saint of America."

In the face of such conflicting assertions relative to his burial-place what shall be the verdict? Since in these days either claim is obviously unverifiable, the matter must forever remain in doubt. Yet how can one explain the fact that the broad meadow lands two miles above the old town have been known as St. Tammany Flats ever since the European invader, by hook and crook, drove out the rightful owners of the land? Though this name is strikingly commemorative of chief Tamanend's ci-devant residence in these parts, lending not a little countenance to local tradition anent his grave, one is yet reminded of the old Roman saw, "nomina sunt odiosa."

A camping ground was identified at the mouth of Bush's Glen Creek, less than one-half mile west of the Indian village. Another encampment was found at the head of this creek, three miles from the river and almost 400 feet above it, on Ira Turner's farm. It is altogether probable that an ancient pathway skirted this stream from its mouth to this site. Indications suggestive of fishing lodges were recognized on the southern shore of Swago Pond, about a mile and a half southwest of the Turner site.

North of Damascus there is a lofty eminence, faced riverward with sheer precipices, several hundred feet in height, on the summit of which is a cavern, reported to have yielded Indian pottery. Being difficult to locate without a guide, the present author did not succeed in finding it.

Topographic conditions being unfavorable, no traces of Indian life were met with at the mouth of Beaverdam Creek, at Damascus. Across the river, however, on the spacious flats above and below Cochecton, in New York State, such traces used to abound. Probably there was a wading-place near here and an ancient trail up Beaverdam Creek, giving access to the lake-dotted highlands of Wayne County.

MILANVILLE

We now pass to a district that was of yore the scene of sanguinary events, when the outraged savage, driven to extremity, turned the scales upon him who had robbed him of all that was once his. Archæologically, also, it is a fascinating region, formerly much haunted by the Redman, as is borne out by the profusion of relics of a primitive type, once littering the riverside.

It is worthy of notice that knowledge of the precise position of the old encampments hereabouts has been transmitted from generation to generation, since the first colonists, arriving here in 1753, still found the natives dwelling on these sites. At least two of them were pointed out to the author on the one-mile stretch of river flats north of Milanville and the correctness of this information could at once be corroborated by field investigation.

One of the camps lay one-half mile north of the mouth of Calkins Creek and the other immediately north of its mouth. A fort built by the colonists was situated a short distance farther north, that is, between the two aboriginal camps. Another fort was on the other side of the river at Skinner's Falls, in the State of New York.

Below the bridge, leading to Skinner's Falls, at the foot of the hill near the river, a caché or hoard was accidentally discovered some twenty years ago. It contained, it is said, scores of imperfectly chipped blades, mostly of chert. A second caché, filled with similar blades, is reported to have been found on one of the two branches of Calkins Creek a few years since. A camp site was located on the flats, less than two miles below Milanville. There are traces of a fishing camp on the eastern shore of Lake Barley, a mile and a half from the river. Considerable camp refuse, indicative of several fishing sites occurs on the extensive meadow lands between mountain and river, a mile north of Narrowsburg.

THE NARROWSBURG ROCK SHELTERS

There are two rock shelters one-quarter mile north of the Pennsylvania end of the Narrowsburg bridge, the exploration of which furnished a wealth of evidence of prehistoric occupation. They are within

thirty meters of each other, a little way up the steep, rocky river bank forming the base of the mountain. Both structurally and archæologically they differ greatly in that the northerly one is much smaller, yielding comparatively few remains, while the southerly one, fully twice as large, proved to be replete with Indian refuse.

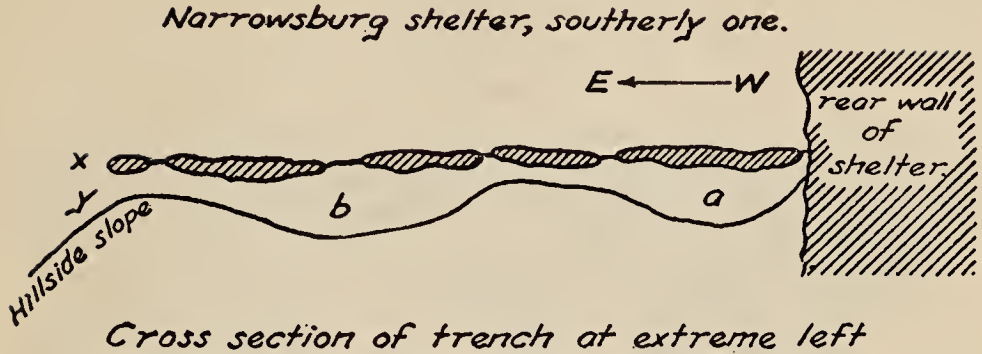
THE NORTHERLY ONE

The northerly one is about thirty feet long, with a maximum roof projection of eight feet, nine feet above the floor along the outside, but only five feet near the rear wall. However, only its left-hand portion could have been used as the other was taken up by a high bank of sand and rock that had no doubt slid down from above. It gives upon the east, facing the river, twenty feet below, where there is a broad shelf of smooth rock, furnishing an excellent landing place.

The surface soil gave no indication of former Indian occupancy, nor were these forthcoming until it was excavated to a depth of five inches. As the upper six inches of dirt were composed of a homogeneous mass of fine, yellow sand, mixed with smooth pebbles, one could not but suspect that this deposit had been swept in by the river at times of freshets. Since nothing was found in this top stratum, this could only mean that such overflows took place in the more recent past, being due to widespread deforestation, which began even before the savage had departed. Consequently, it was in the gravels beneath the silty deposit that camp refuse was found. (See fig. 19.)

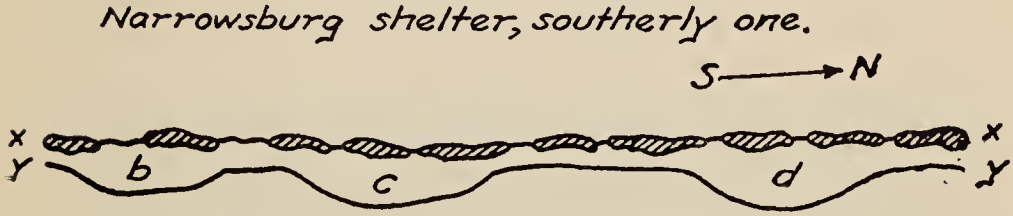
The archæological harvest was, as already stated, quite paltry. Besides five netsinkers, either oval or rectangular in shape and dented at the ends of their lesser diameter, there were several hundred chips, mostly chert, one stemmed point of chert, an inch long, part of a chert point, one plain potsherd, a piece of the stem of an old clay pipe and less than a score of bones, nearly all of them cervine. Vestiges of a firepit were recognized at the extreme left of the shelter, containing bits of charcoal and smoke-stained stones. Its lowest level appeared to be twelve inches. In the yellow gravel adjoining it there lay the pièce de résistance of this station, viz., a straight-stemmed spearhead of chert, five inches long and elaborately carved.

The pipe stem was almost certainly of European make and though it lay seven inches deep in close juxtaposition with primitive camp leavings, it might nevertheless have been an accidental association or modern intrusive object. Otherwise, one must regard it as a trade article, obtained from the white man through barter, in which case,



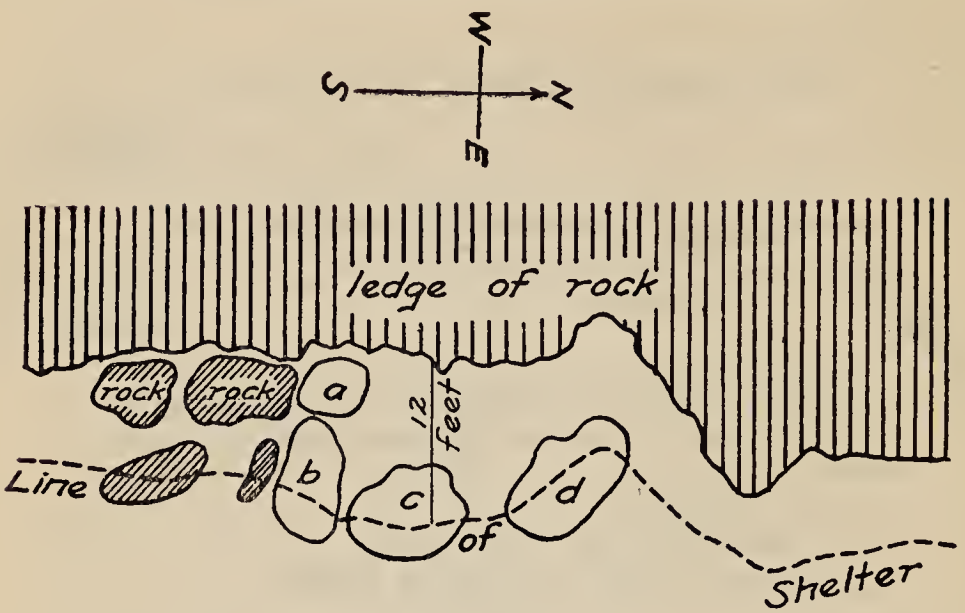
Cross section of trench at extreme left of sheltered area, at right angles to rear wall.
a. b. Firepits.
x. Top layer of flat rocks.
y. Lower limit of Indian debris.

FIG. 21



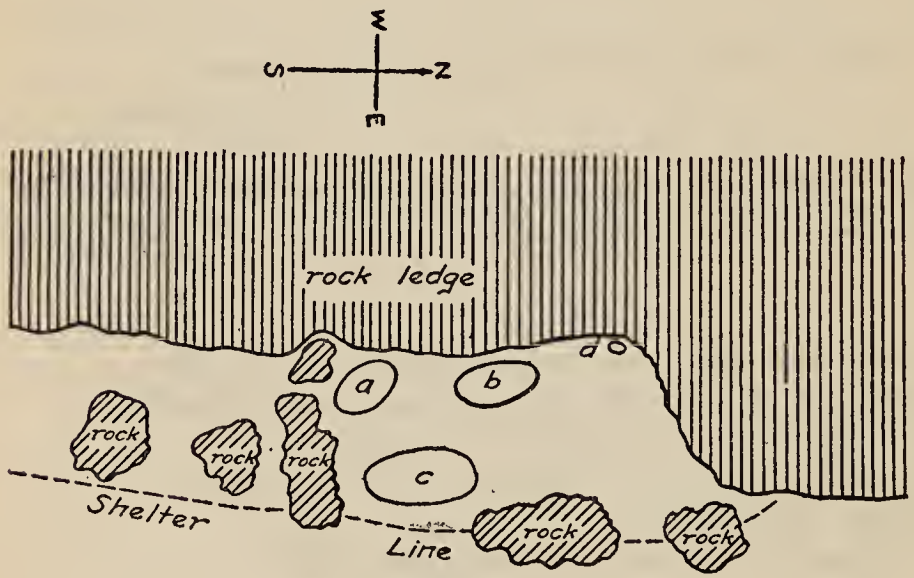
Cross section of trench through firepits b, c, d in foreground of shelter.
xx. Top layer of flat rocks.
yy. Bottom of Indian refuse layer.
b, c, d. Firepits.
Depth of pits is exaggerated.

FIG. 22



Ground plan of Narrowsburg, Pa. shelter; southerly one. 60 feet long, 12 feet deep in centre. 25 feet above river. a.b.c.d.- Fireplaces.

FIG. 23



Ground plan of rock shelter at High Rocks, half a mile north of Wescotang Station, Pike County, Pa.
Used portion to the right some 15 feet long by 10 feet deep.
a, b, c. Where culture remains were concentrated. Probably also fireplaces.
d. Position of celt.

FIG. 24

obviously, it would go to demonstrate that the Indian had continued using this shelter for an indefinite time after the advent of the pioneer.

This spot, then, was the abode of prehistoric anglers, yet it was in little demand, judging from the scantness of the culture refuse. However, the close proximity of a much superior den would naturally cause it to be slighted. As a matter of fact, it is quite conceivable that it was occupied only when the other place was crowded, when it served, so to speak, to accommodate merely its overflow.

THE SOUTHERLY STATION

This is one of the seven principal rock haunts among the thirty-odd sites of this kind, discovered on and near the shores of Delaware River, between Hancock and Dingman's Ferry, in Wayne and Pike counties, Pennsylvania.

It is a spacious shelter, fully twice as large as the northerly one, having a length of sixty feet and a roof elevation of ten feet along its outer edge and six feet at the rear wall. Like all the other dens thus far dealt with, it has an easterly exposure toward the river, which normally flows twenty feet below it, with a steep descent intervening. The slight difference of five feet in elevation between it and the adjacent shelter had apparently sufficed to save it from being deluged and filled with alluvial deposits of silt such as was met with in the other. Instead, its subsoil was composed of gravels and rock rubble, derived from the disintegration of its roof and walls.

The floor was paved with sandstone slabs that had unquestionably been put there since Indian times by white visitors or anglers for the sake of keeping the place dry underfoot. While, thus, there could be no evidence of archæological moment on the top of these slabs, the interspaces between them, showing a little of the underlying dirt floor, disclosed numerous bones and chips, attesting an aboriginal occupancy. What looked like ancient smoke marks were recognized both on the back wall and part of the ceiling, but they are fast fading away by reason of the constant weathering of the rock surface.

The first step in the work of exploration was to remove the flat stones covering most of the sheltered space. This accomplished, the earth underneath was seen to be of a uniform dark color such as could have been due only to frequent fires. The patch of discolored soil could be traced from a large rock to the left of the shelter for some twenty feet along the inner wall and away from the wall for about fourteen feet, that is, beyond the overhang. This patch was nearly 300 square feet in extent and within it were most of the remains.

The section on the left, likewise well shielded from above, was choked with heaps of rock débris, which, being deeply buried in the dirt, had, in all probability, been lying there in the days of the aborigine. Since remains were not likely to occur in such a spot, no attempt was made to pry out these rocks. The other section on the right of the plot of black soil consisted of a stratum of coarse yellow gravel, which eventually proved to be devoid of culture débris, save a few chips, bits of pottery and bones. (See fig. 23.)

As was to be expected, the surface of the dark-colored area, laid bare after the removal of the paving stones, was littered with camp leavings. Though minutely scrutinized, it disclosed nothing worth while like arrow points or decorated potsherds. If such there were, they lay inhumed in the subsoil. Accordingly, a trench was dug along the entire foreground of the covert, barring, of course, the rock-encumbered portion on the left. This trench grew to be twenty feet long by three feet wide and penetrated the layer of dark earth, which, at an average depth of two feet, faded out into yellow gravel, bearing no relics. (See fig. 22.)

The excavation revealed traces of at least three firepits, situated along the front and in part outside of the sheltered space. Each of the pits appeared to be about nine square feet in extent by twenty inches deep and interred in the black dirt were the well known tell-tale marks in the shape of heat-cracked pebbles and bits of cinder, in association with bones, many of them charred, fragments of pottery jars, netsinkers, fresh water mussels and a couple of arrow points, more or less perfect. Here and there, the bones lay piled up in heaps, as though thrown there, and all of them were splintered, presumably for the extraction of the marrow. Since the fireplaces extended outwardly, much of the refuse likewise, occurred for a foot or two beyond the shelter line, some of it lying at a depth of more than two feet underneath a talus of large boulders.

A second trench along the extreme left-hand portion, at right angles to the rear wall, exposed another hearth in the corner formed by the latter and a large rock (see ground plan). The blackish dirt within this pit reached to about fifteen inches below the ground, where, as before, it rested on gravel, enclosing no objects of primitive origin. The firepit was quite prolific in relics in that it yielded no less than nine netsinkers together with two perfect arrow points, of flint, besides the usual medley of ordinary refuse such as broken pieces of pottery, flakes and bones. (See figs. 21, 24.)

As concerns the remaining area of dark soil in the center portion

of the rock, viz., between the rear wall and the three fireplaces in the foreground, it was by no means destitute of relics. Diffused through it from top to bottom, some ten inches down, there were many beautifully decorated potsherds and several arrow points of chert. Although this particular patch did not afford any sure signs of a firepit, penetrating farther down than the surrounding culture-bearing stratum, the condition of the soil left no doubt that here, too, fires had been burning and, we may be certain, not only once but repeatedly.

SUMMARY OF FINDS

It will be recalled that the culture-bearing deposits under this rock were less than 300 square feet in extent by about two feet thick. From it the following objects were recovered:

1 perfect, straight-stemmed point, of flint, one and a half inches long.
1 perfect leaf-shaped point, two inches long.
1 triangular point of nuvacolite.
2 straight-stemmed slate points, each an inch and a half long.
3 crude triangular points, of chert.
1 imperfect point, of chert.
The base of a notched chert point.
Fragments of three small points.
10 crude netsinkers, oval, round, rectangular, dented medially, of sandstone.
Hundreds of chips, predominantly of gray chert, some of flint, thousands of bones, mostly of deer, also bird bones, probably wild turkey.
Pieces of the carapace of turtles.
Scores of unio shells.
Hundreds of potsherds, Iroquois and Algonkin, among them five rim pieces, showing a broad collar and incurving neck; one of them was angular or square. Many of the sherds were ornamented with elaborately incised oblique and parallel lines or the chevron design, and with crescent-shaped pits just above the constricted neck. All these were suggestive of Iroquoian industry and they constituted about one-seventh of the sum-total of pottery fragments, here extant.
Sherds of Algonkin type, either cord-marked or displaying the herring-bone design and rows of dotted lines, belonging to some thirty pots.

Fragment of the bowl of an Indian pipe, of baked clay, decorated with fine dots in horizontal, vertical and oblique lines.

Fragment of a prehistoric pipe stem.

CONCLUSIONS

In view of the variety and quantity of the culture contents met with at this station, one is warranted in contending that it was one of the Redman's favorite haunts. The slivers of flint and chert, of which several hundred were found, bear witness to a workshop, where the hunter fashioned some of his tools or weapons. The profusion of animal remains or bones conjures up the image of a dusky brave, returning from the chase, building a fire and cooking the meat. The identification of the bones allows us some insight into the character of his diet and of the various game animals, then peopling the mountain fastnesses. Thus, from the preponderance of deer bones we learn that deer meat or venison was preferred to all others and also that this species of animal was relatively most abundant.

The netsinkers as well as the numerous fresh water mussels are evidence that those who lodged under this hospitable roof were in the habit of fishing. And for them no spot could have been more advantageously situated, seeing that a few steps down the steep incline would bring them to the water's margin. As for the abundance of pottery remains, it clearly hints at squaws sojourning here in company with their male consorts. The large number of these sherds, belonging to at least thirty jars, tells in itself an eloquent tale of numerous visits to this place. The large proportion of Iroquoian fragments is significant in that it bespeaks frequent contacts between the two neighboring peoples, the Algonkins being the learners.

Speaking of the vertical distribution of the various kinds of culture refuse or of the depths at which they lay buried, it is to be remarked that the objects were distributed pell-mell throughout the deposit, that the pottery pieces occurred at all levels and that they seemed to be just as plentiful farthest down as near the surface. Indubitably therefore, this station gave no indication whatsoever of more than one culture horizon or such as would be characterized by an upper and lower culture-bearing stratum, deposited at different periods and divided the one from the other by a sterile layer, representing an interval of time, during which the shelter remained unoccupied.

CULTURAL ASPECTS

It is worth noting that at this station, no less than at some of the others that were rich in camp refuse, there existed a strange disparity

between the sparseness of chipped stone tools on the one hand and the wealth of pottery remains on the other. At all events, quite the reverse of this condition was observed in sites of this character in both the Ramapo and Shawangunk Mountains, in the State of New York. As a matter of fact, any rockhouse in the latter mountains—and the present author has explored scores of them—corresponding in size to those in Delaware River valley and containing a similar, nay, even much smaller quantity of potsherds, would have yielded from twenty-five to one hundred arrow points besides numberless chips as against a maximum of ten arrow points, that were encountered at one of the most important shelters in this valley, namely, the one on Upper Otter Brook, at Lackawaxen, Pike County, Pennsylvania.

Generally, however, the New York mountain dens were less profuse in earthenware than those of this region, the exceptions being, presumably, those shelters which lay near ancient pathways in a terrain which was not too rugged and could therefore be readily traversed even by squaws carrying jars.

From evidence such as this we may infer that the New York stations had been predominantly hunting lodges, i. e., they had been resorted to chiefly by men who, encamping in the mountains in quest of game, were ever busy replenishing their stock of weapons. Perhaps the most typical example of such a hunter's lodge is that of Horsestable Rock, near Tuxedo, New York, which yielded more than 200 arrow points with not a vestige of pottery.

In the case of this rock as well as in many others the meagerness of pottery remains may be accounted for largely by the fact that the asperities of the lay of the land rendered them rather difficult of approach, at any rate for squaws burdened with pots. Ergo, as women did not often come to these dens, little earthenware was left behind. In passing, it may be added that, as the ancient occupants of these haunts, being mostly hunters, were always on the move, lingering but a few hours or a night at any of them, the impression gained from their exploration is one of transitory though, perchance, frequent visits.

Reverting to the rock abodes along the Delaware, they were, most of them, readily accessible, even to squaws and papoose, and it is probably for this reason alone that they came to be rich in pottery. Being close to the river, they were without question the haunts of fishermen rather than of big game hunters. Being anglers, they did not have to make such a frequent use of the bow and arrow, which always involved much chipping of stone darts. In general, then, these

latter sites seem to have been more of the nature of family shelters and, as such, they were somewhat more permanently tenanted.

From what has been said, it follows that the more remote rock stations, of which there must be not a few in the mountainous area miles away from Delaware River, may be expected to exhibit a culture complex not unlike that of many a station, similarly situated, in Southeastern New York, to wit, a preponderance or high ratio of carved stone implements associated with a relative dearth of earthenware vestiges, for, surely, accessibility was a deciding factor in this respect.

INDIAN SITES ALONG THE DELAWARE BETWEEN NARROWSBURG AND LACKAWAXEN, PIKE COUNTY

Hitherto, in our study of the archæology of Delaware River valley, we have met with a practically uninterrupted succession of river camps from a point a few miles above Hancock to Narrowsburg, the only break being the strip of river bank from Equinunk to Kellams Bridge, where sites were few and far between. It will be remembered, there were but two of these, lying a couple of miles apart. Below Narrowsburg, however, as far as Tusten, a distance of more than four miles, the survey revealed a pronounced hiatus or discontinuity in this long series of encampments, unless, indeed, we regard some scattered relics, said to have been found on the sloping fields near the mouth of a small stream, halfway between the two localities, as connoting an isolated lodge site. The reason for this non-occurrence of sites hereabouts, is, as usual, to be looked for in topographic conditions. All along this narrow zone, the steep hillsides take their rise close to the borders of the river, excepting a few places where the ascent is more gentle. Under these circumstances no sites could be expected to occur. Across the river, however, in Sullivan County, New York, where the lay of the land is more favorable, two camps were noted, separated by a distance of more than three miles.

TUSTEN

What was to all appearances a fishing camp occupied the broad meadow lands just below the Erie railroad bridge. Here, numerous artifacts of primitive handiwork are claimed to have been recovered, among them quite a few netsinkers.

MASTHOPE

Traces of two camp sites were found at this place, one near the river, about one-half mile north of the railway station, and the other on rising ground, immediately north of the mouth of Masthope Creek. A third encampment, now no longer discernible, is pointed out by local tradition, as having been situated upon a knoll, between the station and the mouth of the creek.

WESTCOLANG

The far-flung bottoms north of Westcolang, two miles below Masthope, used to be replete with relics of the Redman, including net-

sinkers and agricultural tools like hoes and pestles. Obviously therefore, those who resided here derived much of their sustenance from the cultivation of the soil and also from angling, supplementing any deficiency, we doubt not, by occasional hunting trips through the mountains round about. Indian graves, containing artifacts of various types, have been discovered at the lower end of these flats.

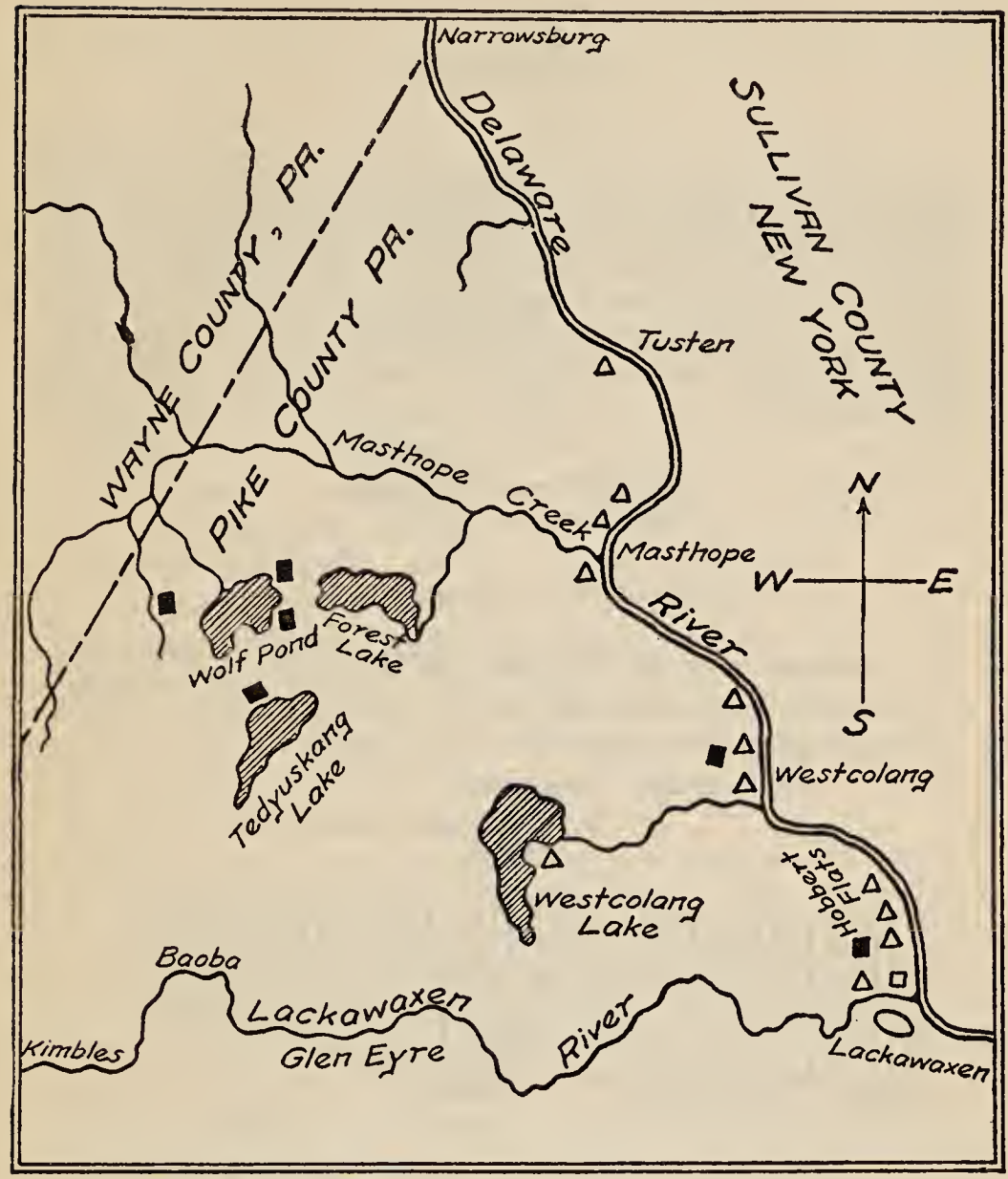
THE "HIGH ROCKS" SHELTER

Dominating the Westcolang Flats on the west is a hill, the riverward facing flanks of which are acclivous and littered with broken ledges. Approximately opposite the center of the flats, high above the river, are the so-called High Rocks, a tumbled mass of precipitous outcrops or escarpments, jagged and weather-worn, at the bottom of which are cave-like formations or dens, large and small, that, in the past, must have afforded ideal lairs or retreats for the denizens of the wilderness like catamounts and bears. That at least one of these rocky recesses had proved attractive to the troglodytically minded savage was borne out by the investigation of its interior.

The cliff at this point is no less than forty feet high, but its lower portion is deeply eroded, a process which resulted in an overarching roof, some twelve feet above the base, while the crumbled rocks or talus, weathered out of its steep face, came to be piled up in the concavities thus formed or to be scattered outside of them. As a consequence, most of the space under the impending ledges was spoiled for camping, choked, as it was, with rock detritus underfoot, though amply protected overhead.

Along this one-hundred foot expanse of beetling crag there was but one spot, at which the floor was not, and probably never had been, encroached upon by fallen débris. As, therefore, it would have been immediately available for use and this all the more so as structurally also it seemed inviting enough to have suited any roving savage's taste, it was singled out for an examination.

This place opens east toward the river, which is 150 feet below and one-third of a mile distant, with the Westcolang Flats intervening, and it is of moderate size, fifteen feet long by about twelve feet deep, while the roof is from ten to twelve feet above the floor. On the left it is delimited by a heap of talus and on the right the rear wall bends around toward the front, thus enclosing it laterally. As for water, there exists what is today an intermittent spring farther up the hillside, a spring which in the past, doubtless, provided a never-failing supply of this life-giving element. (See fig. 26.)



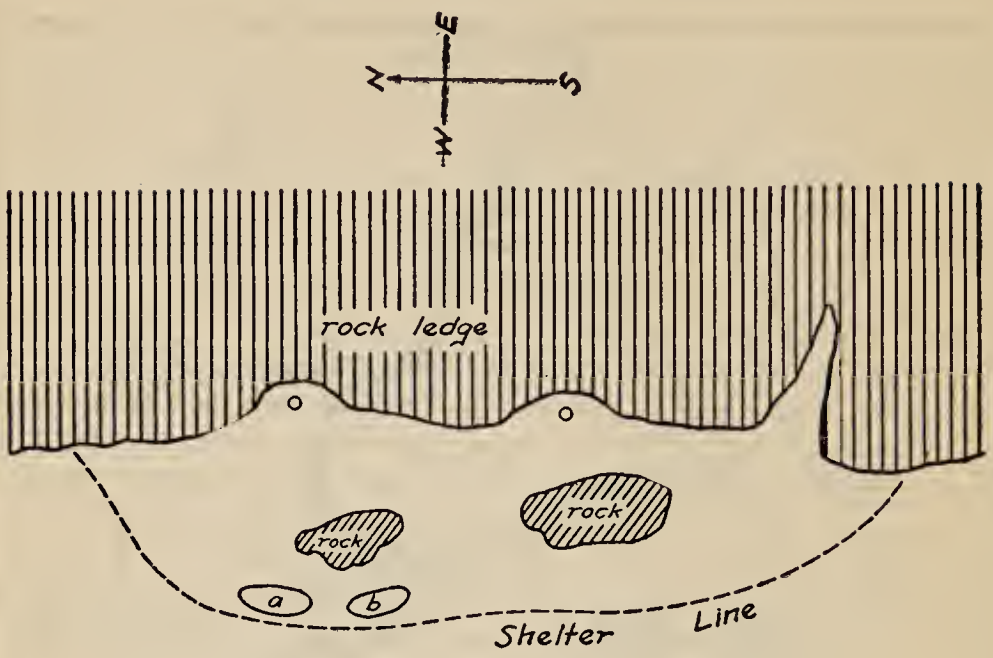
Sketch map of northern Pike County, Pa. between Delaware and Lackawaxen rivers, giving position of Indian sites.

■ rock shelters. ○ village sites.
△ camp sites. □ burial place.

Scale. 5 miles to 3 inches.

0 1 2 3 4 5

FIG. 25

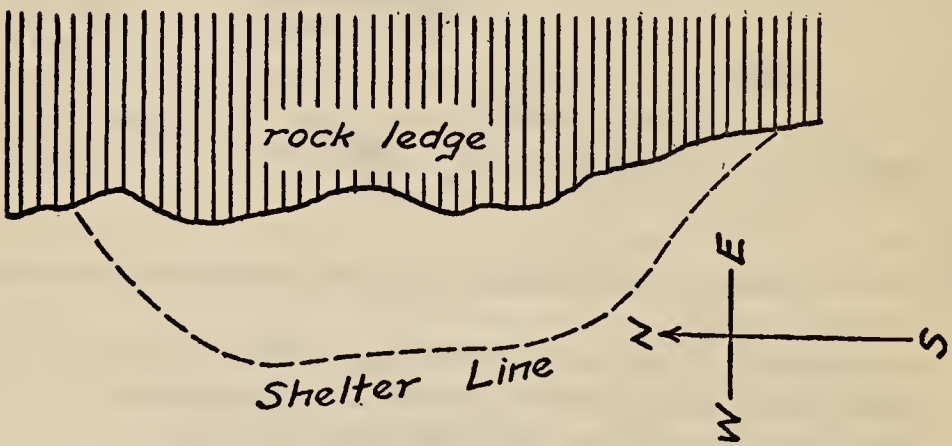


Ground plan of Rockwood shelter, about a mile west of Wolf Pond, Pike County, Pa. Length about 50 feet, roof projection from 10 to 15 feet.

a. b. Firepits.

o o Fire stained walls.

FIG. 26



Ground plan of Gregor shelter, on the easterly shore of Wolf Pond, Pike County, Pa. Length 20 feet; roof projection from 6 to 8 feet.

FIG. 27

Even here, the floor was by no means free from stones, but they were of medium size. The soil in between revealed numerous broken bones, bleached and weathered by long exposure to the air. This was a good omen, suggesting the possible occurrence in the subsoil of other prehistoric remains. And, indeed, the anticipations thus aroused were not to come to naught, for, although eventually the culture contents proved to be sparse, enough was found to enable one to draw a picture, however imperfect, of some phase of aboriginal life, so far as it was enacted under this roof.

A trench dug along the front disclosed a firepit near its left, indicated as always, by darkened soil, wherein were embedded a number of stones, exhibiting crackling and other evidences of having been subjected to the action of fire. Besides these, there were interspersed through it scores of broken bones, including many jawbones and single teeth, all belonging to deer, as well as bird bones and fragments of turtle shells.

There were furthermore divulged dozens of potsherds, about half their number decorated after the Algonkin style; a small quantity of chips, mostly of gray chert, a few of black flint and one of yellow jasper; one triangular arrow point, an inch long, and the base of a straight-stemmed chert point. The refuse occurred to a depth of twelve inches, beneath which sandy loam and gravel was struck, which appeared to be barren of remains.

A second trench along the back wall gave further evidence of the use of fire, concentrated, so it seemed, at two spots, to wit, one on the extreme left of the covert near a big rock and the other midway between this rock and the outcurving ledge on the right. The refuse here encountered was of the same sort save for a quantity of unio shells, all of them comminuted or reduced to diminutive fragments, buried in the left-hand hearth at a five-inch level and, further, a rim sherd sufficiently large to show both a portion of the raised collar and of the incurved neck, so characteristic of Iroquoian ceramic ware. This collar piece displayed a design of incised lines, oblique, horizontal and vertical, and also stamped rows of pits, encircling its rim and lower edge, where it meets the constricted neck.

Over to the right near the rear wall there was unearthed at a three-inch level a fairly good specimen of a celt with a nicely beveled cutting edge, four inches long by two inches wide and less than an inch thick, manufactured out of a close-grained sandstone. Many such artifacts have been found throughout this territory west and north of Port Jervis, whereas tomahawks have been of rare occurrence.

Hence, celts seem to have replaced grooved axes in this region and this fact furnishes, in conjunction with pottery, convincing proof of Iroquois cultural influence, penetrating far into the domain of the Lenâpé. As is well known, the Iroquois did not, as a rule, make use of grooved axes but employed celts instead. Farther away, however, in New Jersey, once the exclusive habitat of Algonkin tribes, axes used to be plentiful, though celts had always been rare.

COMMENTS

The story unfolded by the culture refuse of this station differs in no wise from that of other stations. The chips tell us that stone tools were flaked here; the unio shells give us an intimation of trips to the river in order to secure both these bivalves and fish; the bones bring to mind the hunting savage, unloading his quarry under the rock, kindling a fire and broiling the meat and, lastly, the pottery remains betray the presence of squaws and also, mayhap, of papoose. Since these latter vestiges seemed to represent no less than ten jars, there is reason to believe that this place was tenanted more than once. Considering, however, the small aggregate of its culture contents, one is justified in inferring that visits were alike infrequent and of short duration.

At the cavernous base of a steep and much fissured scarp, a little below this shelter, the author discovered a heap of fractured deer bones in association with chunks of gray chert, some five inches underground. It may be surmised that the latter had been cachéd by a passing redskin who, on his way back, intended to recover them as raw material for the making of arrow points.

A prehistoric fishing camp occupied the level stretch of ground on the eastern bank of Westcolang Pond, near where its much indented shore line extends farthest east, immediately south of the outlet of Westcolang Creek, two miles west of the Delaware. It may be supposed with a considerable degree of verisimilitude that a trail led up the valley from the river, skirting the banks of the creek.

ABORIGINAL ROCK SHELTERS IN FOREST LAKE PARK, PIKE COUNTY

The following data, dealing with the exploration of three Indian rock shelters in Northern Pike County, were most generously placed at the disposal of the author by Mr. Elmer R. Gregor, of Southport, Connecticut. Mr. Gregor, the discoverer and investigator of these stations, has, as a student of archæology, devoted much of his time to a survey of this particular region. The shelters are on private grounds, owned by the Forest Lake Hunting and Fishing Club, and, being a member of this club, he had the privilege of searching their every nook and corner. The results of his reconnaissances, herewith embodied in this report, cannot fail to constitute a most valuable contribution to the prehistory of Delaware River Valley.

INTRODUCTORY REMARKS

Like the rest of the county and adjacent territory as well, Northern Pike County is a rugged highland district, with numerous tarns nestling amidst the hills and traversed by not a few small streams that course down the winding dales on their way to the Delaware and Lackawaxen rivers.

As the sandstones and shales of Upper Devonian age, composing the framework of these hills, are little resistant to atmospheric agencies, such as heat, frost and running water, they are constantly crumbling away, especially where they crop out as scarp and crag. This ceaseless process of disintegration has been responsible for the sculpturing out of the cliffs of caves and coverts, so numerous throughout the county.

The Redman, in common with all other primitive peoples, was ever quick to avail himself of these ready-made dens which Nature had provided at the foot of overarching ledges. Being troglodytic to a degree, whenever the opportunity arose, he has left his earmarks, for us to decipher, at the three rock shelters, occurring near Wolf Pond within the very limited area of three square miles.

THE THREE ROCK SHELTERS

Mr. Gregor has discovered and explored three rock shelters in Northern Pike County, all situated in the hills to the west of the

town of Masthope and from six to seven miles distant from Delaware River.

The largest and most important of these shelters, now known as the Rockwood Shelter, was accidentally discovered by his hunting partner, the late Walter B. Rockwood, in the year 1904. Since that time he has thoroughly explored this place and the result has been a large and interesting collection of Indian artifacts.

THE ROCKWOOD SHELTER

The Rockwood shelter is situated beneath an overhanging rock ledge which is 150 feet in length and more than twenty feet in height from the top of the shelter and extends north and south with a westerly outlook. It lies about a mile to the west of a beautiful woodland lake, called Wolf Pond, and a mile farther to the northward is a deep, wooded valley, through which flows a famous trout stream, an affluent of Rattlesnake Creek. A small swamp or swale and a spring are within a quarter of a mile of the ledge, but there are no other indications of a water supply in the vicinity. (See fig. 19.)

The rocky roof of the shelter overhangs ten to fifteen feet, is five to six feet above the floor, which is level and covered with a deposit of decayed rock and earth to a depth of from two to four feet.

The rear wall has eroded in places so as to form shallow niches and at these spots the wall bears the marks of fire stains. A number of firepits were uncovered along the front or face of the shelter.

At the first investigation, conducted by him more than twenty years ago, there was nothing to show that its subsoil had been disturbed since Indian occupation. Under the layer of leaves and other forest débris, apparently the accumulation of centuries, bones and potsherds were found on the surface of the ground. The sherds continued downward through the soil for a depth of from one to two feet. Mingled with them were flat stone netsinkers, notched on two sides and one with a groove extending completely around the stone. All of these sinkers were fashioned out of native sandstone.

Although pottery fragments were abundant and gave evidence of many different jars, there were very few chips or arrow points. One notched point, several small triangular ones of black flint and one long slender stemless point of light-colored flint, probably not more than twenty of them, have been recovered at this place.

An interesting relic was a very old imperfect bone arrow point, which was deeply notched on both sides and may have been intended for a fish spear. Other articles of bone were awls. One of these was

exquisitely wrought, smoothly polished and sharp at the end. Nor were heating stones wanting.

One of the most remarkable objects was a triangular token or amulet stone, apparently very ancient and of soft material of a reddish color and wholly foreign to this region. It was marked with symbolic designs, some of which had unfortunately become effaced by the erosion of its surface. However, careful examination under the magnifying glass convinced the researcher that the design was that of the Lenâpé Thunder Bird, with which design he is quite familiar. Another somewhat similar object of native rock was recently dug up near the front of the shelter. It was about three inches long by one and a half inches wide and had been worked into a round knob at the top, with three indentations on each side. The artificer had begun drilling a hole through this knob but had abandoned the task. This stone would seem to have been a tally stone of some sort. It may also have been an unfinished banner stone.

Several small round pebbles were found lying together, each of which was distinctly stained white on one half of its surface and black on the other. The researcher believes they were gaming stones. There were also several stone scrapers and a few notched slivers of bone, which may have been used for shaving and shaping arrow shafts. Embedded in the refuse were, moreover, a considerable quantity of bones, all of which had been split for the extraction of marrow. As always, those of deer were most numerous, but there were also the skull of a fox, beaver teeth and many bird bones. No tortoise shells were come across, but those of the fresh water mussel (unio fluviatilis) occurred in abundance.

Although some of the potsherds were assuredly Algonkin, most of them appeared to be of Iroquoian origin. Several rim sherds were deeply dented and exhibited the square collar type of jar. All of these were incised with small dots, straight lines and the chevron design, while others had small knobs of clay moulded upon the collar below the rim. Two small sherds displayed an unusual design along the top of the rim and the decoration was continued for half an inch down the inside of the jar.

The preponderance of the Iroquoian type of pottery, taken in connection with the finding of triangular arrow points and the notched bone point leads the researcher to believe that this shelter was used by Iroquois hunters and fishermen who frequently invaded the territory of the Lenâpé. While this may be so, it is equally conceivable that the one-time occupants of this covert had all along been mem-

bers of some Lenâpé tribe and this notwithstanding the above reminders of Iroquois culture, since it is well known that the industry of the Lenâpé had been greatly influenced by that of the Six Nations.

The investigation of this station afforded no proof of more than one culture level. The artifacts were distributed indiscriminately all the way from the surface to a depth of eighteen inches, where the soil became barren. However, most of the sherds lay within a foot of the surface.

THE GREGOR SHELTER

This, a much smaller covert, was located by the researcher the year after the discovery of the Rockwood station. It is situated about three miles northeast of the latter and is within 300 feet of the easterly shore of Wolf Pond. It is at the base of a small ledge, which rises at the top of a steep rocky incline, about 100 feet above the pond. It has a westerly outlook, is some twenty feet in length, overhangs from six to eight feet and the roof is not more than five feet above its floor. It was gratifying to find that it, too, had apparently remained intact ever since the Redman's exodus. (See fig. 27.)

The accumulation of decomposed mineral and vegetable matter underneath its roof was much heavier than under the large shelter, averaging three feet in thickness and in several places exceeding four feet. Here, also, pieces of pottery and bones were encountered on top of the ground, although not nearly so abundant as at the Rockwood station. At the same time, the artifacts were fully as varied in character as those dug up at the former place. Besides the fragments of earthenware, which showed more of the Algonkin type, there were quite a few notched netsinkers, several stone scrapers, another small gaming stone, some plummets or heating stones, a few notched flint arrow points and one elaborately carved point, manufactured out of red jasper. A couple of bone awls were likewise extant. There was still another remarkable relic, namely, what seems to be the first joint of a human index finger. The nail cavity is plainly discernible and the joint had evidently been severed with a slanting blow or bite.

Of particular interest was the observation that the bottom of the two-foot deposit, containing sherds, arrow points, scrapers and bone awls, was underlain by a one-foot stratum of coarse yellow gravel, barren of all artifacts, which in turn was superposed upon another deposit of earth, yielding very crude stone implements. Among these was a stone knife, some large hammerstones, pitted on the sides, and stone scrapers. The hammerstones were patinated or encrusted and

seemed to be most ancient. Shown to the late Mr. Alanson Skinner, of the Museum of the American Indian, he pronounced them authentic artifacts of crude culture and real antiquity.

THE WOLF POND SHELTER

This is a small and unimportant rock haunt at the foot of a low cliff at the easterly end of Wolf Pond, within thirty feet of the water and about 500 feet northwest of the Gregor station. The ledge is barely ten feet high and the shelter underneath is about ten feet long. The rock projects no more than four feet and the roof is less than five feet high. (See fig. 21.)

Not many potsherds were found in this shelter and they lay less than six inches below the surface. As bones, arrow points or implements of any type were completely absent, it may have been only a caché for the safe keeping of pots. Possibly it was a squaw shelter, set aside for the use of women in accordance with certain taboos, observed by most primitive peoples.

A rather extraordinary find here made was that of an old Barlow knife, such as was in use among the early settlers. It was much the worse for rust and seemed to have been inhumed in the ground, several inches below the surface, for a long time. The bone handle was incised with the Indian chevron design, which leads the researcher to believe that the knife had been obtained by barter with white traders and decorated by the Indian who secured it.

The rock shelters described in the foregoing are in a wild mountainous country at a mean altitude of 1,200 feet above sea level. All have a westerly exposure and two at least testify to having been used as retreats or camp sites by roving bands of Indians who made their way to the woodland lakes to hunt and fish.

Another ledge, which offers ideal shelter for a large company of men, is situate along the southerly banks of the pond, but it is devoid of artifacts such as would betoken aboriginal occupancy. It fronts north and this perhaps was the reason why the savage passed it by.

GENERAL REMARKS

Analyzing the results obtained by Mr. Gregor in his study of the above rock haunts, several features of an unusual character and quite peculiar to them must be stressed. In the first place, there were noted certain objects that are seldom met with elsewhere, such as bone awls and bone arrow points, whereas none of the thirty-odd shelters along Delaware River valley yielded any specimens of this type.

Another rare find, dug up at the Rockwood station, is the so called tally stone. Decidedly unique, however, is the amulet stone, graved with the symbol of the Thunder Bird, found at the same place.

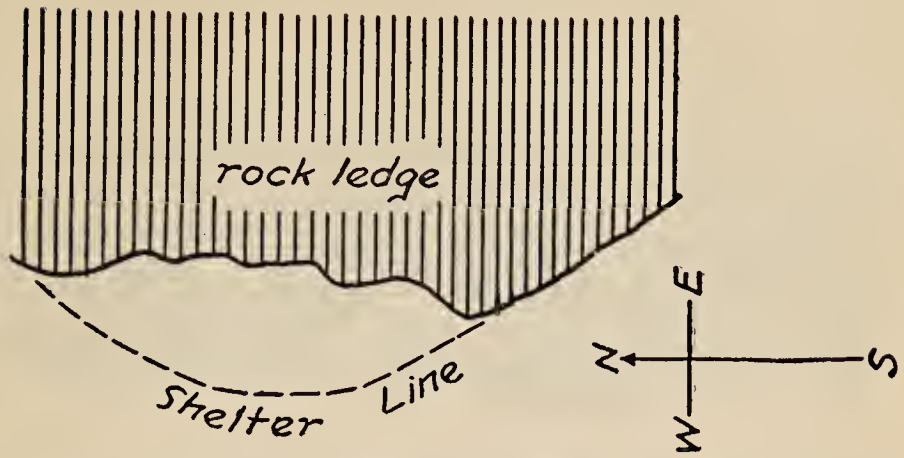
Again, some of the relics are said to have evinced unmistakable signs of being extremely old. If correct, this may be taken to mean that the stations, containing them, began to be occupied far back in time.

Further, the occurrence at the Wolf Pond of a European-made knife, the Barlow knife, lying intimately associated with aboriginal leavings in what was evidently an undisturbed culture deposit, is a sufficient warranty for declaring that the savages continued using this particular den for some time after the white man's coming. In a word, this find proves that contact had then already been established between the two races.

Most pregnant with meaning, however, is the undoubted discovery at the Gregor station of two distinct horizons of culture, separated the one from the other by an intermediate one-foot stratum, that was entirely destitute of remains. While the objects contained in the top layer of recent age were of fairly good workmanship and of a type representative of the last stage of material culture attained by the savage, those in the bottom or oldest layer were, all of them, crudely made and pottery was absent. This, of course, is precisely what we would expect when we consider the time interval between the two deposits. For the Redman, like ourselves, advanced in time, though slowly. It is because of the above facts that the Gregor shelter is unique or the most remarkable of the many stations under review in this report. In passing, attention may be directed to the fact that at these places also chipped stone tools were rare in comparison with the observed abundance of other refuse.

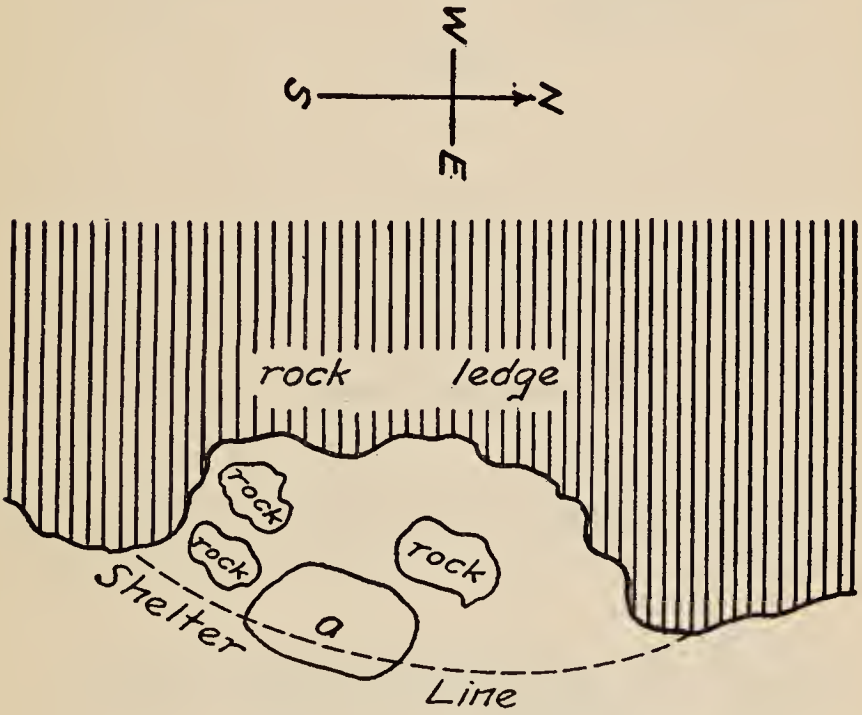
TEDYUSKUNG LAKE

A scant mile southeast of Wolf Pond is Tedyuskung Lake, a charming sheet of water, a mile long by about a quarter of a mile wide. On its northwesterly shore, between two spring runs, there was until about the year 1900 an overhanging sandstone ledge, the upper part of which jutted out for several feet high enough above the ground to permit of standing upright. The covert, thus shaped, was not infrequently invaded by modern anglers, who occasionally spent a night under its roof. The owner of a nearby inn, impatient over this state of affairs, finally blew up the ledge with a charge of dynamite. Today, nothing is left of it but a huge pile of broken rocks. The above statements, though no longer susceptible of proof, have all the earmarks of truth and are



Ground plan of the Wolf Pond shelter, Pike County, Pa. It is about 10 feet long with an overhang of not more than 4 feet.

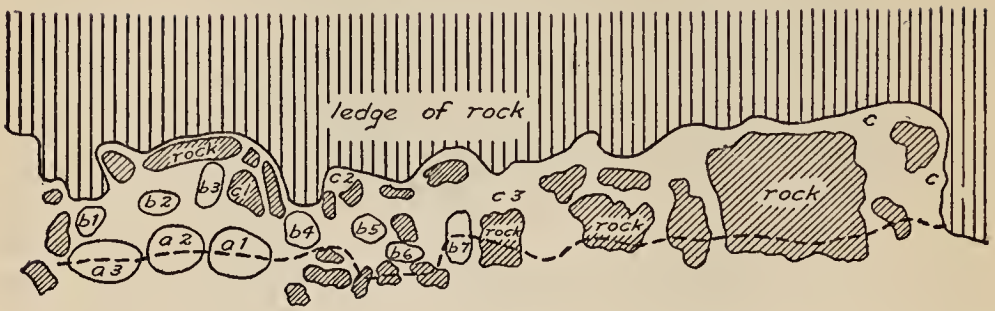
FIG. 28



Ground plan of shelter, a mile north of Lackawaxen, overlooking Holbert Flats, Pike County, Pa. Length about 16 feet. Maximum overhang 8 feet.

a.—Position of culture debris.

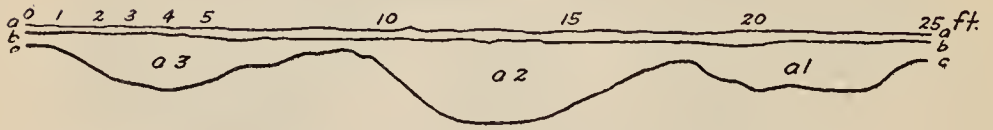
FIG. 29



Ground plan of Prospect Rock Indian rockhouse, ¼ mile north of Lackawaxen, Pike County, Pa. Length of shelter 110 feet, overhang from 10 to 14 feet. It fronts toward the east.
a1, a2, a3; mark feast pits; b.b. mark smaller pits or fireplaces; c.c.c. denote site of scattered remains. Dotted line indicates limit of overhang.

FIG. 30

Prospect Rock Station.



Cross section of trench through feast pits in front of shelter. a-a. Modern surface. b-b. Surface of culture deposits; c-c. Lower limit of culture deposits.
a1, a2, a3, Feast pits.
Drawn true to scale.

FIG. 31

made on the authority of Mr. Asa Quick, of Port Jervis, who himself had repeatedly camped beneath this rock ere it was demolished. Both he and others claim to have found here broken pottery, netsinkers and chipped flints, scattered over the dark surface soil.

FISHING CAMPS

From reports received, evidences of Indian occupation have been discovered on the banks of many of the ponds that occur throughout these hills. It is clear that these places were anglers' camps and that the Redman was lured thither by the prospects of rich hauls.

ABORIGINAL SITES ALONG THE DELAWARE BETWEEN LACKAWAXEN AND MILL RIFT, PIKE COUNTY

Along this 21-mile strip of the valley, including a section south of Lackawaxen, the survey resulted in the determination of at least twenty camping grounds, three village sites, ten rock shelters and one burial place. Most of these lay near Lackawaxen, which vicinity must therefore have been favored above all others in this region. And this is not surprising in view of its physical advantages, viz., extensive flats, bordering the Delaware north and south of its junction with the Lackawaxen. In general, localities situated at the confluence of two big streams had always been seductive to the aborigine, even as they are to us. Not infrequently, they were the points where two or more important trails intersected or met.

Here, then, in an area three miles long by a quarter of a mile wide, no less than two prehistoric camp sites, two village sites, five rock shelters and one cemetery could be mapped. In the uphill section, south of Lackawaxen as far as Shohola Falls, there were found eight camps and two rock shelters, while below Lackawaxen, along the remaining 14-mile stretch of river banks downstream to Mill Rift, there were identified seven encampments and three rock shelters, lying miles apart.

THE HOLBERT FLATS

There was a group of fishing places or a village on the meadow lands bordering the river, known locally as Holbert Flats, extending from below Westcolang to the mouth of the Lackawaxen, a distance of two miles. On these sites many chipped stone implements have been plowed up in years gone by, together with netsinkers of the flat, oval, water-worn type and numerous perforated round pebbles of about the size of a quarter. Though the latter are somewhat problematic, the bore through them looks as if humanly made and if so, these stones may have belonged to ornaments in the shape of necklaces.

Examination of a collection of objects from this neighborhood showed that the majority of the arrow points had been fashioned out of gray chert, while a few consisted of flint, quartz and yellow jasper. Some of the points were of triangular shape and hence indicative of Iroquoian influence. The potsherds were on the whole characteristic of the Lenâpé industry, exhibiting stamped designs or cord-markings. A

few, however, decorated with zig zag lines on a broad projecting collar, were strikingly reminiscent of Iroquois culture.

THE UPPER LACKAWAXEN ROCK DEN

There is a rock shelter at the bottom of the steep rocky bluffs, about one hundred and fifty feet up the side of the mountain overlooking Holbert Flats on the east, and two hundred feet above the river, a mile north of its junction with the Lackawaxen. It gives upon the east, thus also overlooking the flats, which approach to within five hundred feet of it. It is sixteen feet long by about eight feet deep and the roof is well elevated above its floor. The latter was quite free from rock débris of large size though covered with rubble several inches deep. The inner walls showed no smoke stains and there were no tell-tale marks on the surface, like chips or bones. (See fig. 29.)

An excavation made in the foreground disclosed no traces whatever in the upper 5-inch layer of mingled dirt and stone. Below this level and down to a depth of a foot there lay diffused through the dark soil a score or so of bones, mostly cervine, a few bird bones, a single flint chip and twelve small potsherds. Three of the latter were plain and two were rim pieces, indented at the top and decorated with dotted lines of identical pattern, showing they belonged to the same jar. The other fragments were ornamented with the chevron design and with parallel lines of fine dots. Inspection revealed that these twelve sherds had been derived from no less than five pots.

The dark soil, wherein was embedded the above assemblage of culture refuse, marked, indubitably, the position of a fire place. The circumjacent deposits, consisting of yellow gravel, gave no indication of the action of fire and were barren of aboriginal traces. Thus, all the tell-tale signs of the Indian's quondam presence at this rock were concentrated in one spot, marked "a" on the accompanying ground plan. This fact and the sparseness of the culture refuse would seem to bespeak but a single visit to this place and its interpretation again presents to us the spectacle of a brave and his squaw, repairing hither for the purpose of building a fire and cooking the venison.

THE POSITION OF FIREPLACES

At this juncture, it may not be amiss to say a few words anent the position of the hearths under the rocks. Almost invariably they were seen to be in the foreground of the shelter or directly beneath the projecting edge of the roof. At some of the larger stations, where there was evidence of several fireplaces, they occurred, to be sure, both along

the outside and the inner wall as well as in the center of the covert, yet in very few cases had they been confined exclusively to the rear wall or center. However, at most of the rock shelters in the Ramapo and Shawangunk mountains the conditions prevailing in this respect did not differ from those observed hereabouts. The next two stations, on Otter Brook, afford additional examples of this sort, as will be seen presently.

While, at first blush, such an arrangement, so generally observed, may seem strange, the reason for it is probably quite simple. Obviously, fireplaces built along the outside were out of the way, leaving the best part of the shelter for camping and permitting the fullest possible use of all the available space. In the second place, such an arrangement may have been looked upon as providing some protection from prowling wild life like bears and the much more ferocious members of the cat family, namely, wild cats and catamounts.

THE PREHISTORIC CEMETERY

It is a matter of authentic record that an aboriginal cemetery occupied the high banks of sandy loam bordering the Lackawaxen at the very point where it empties into the Delaware. When, in the year 1828 or thereabouts, the excavations for the Hudson-Delaware Canal had progressed as far as this locality, human bones and complete skeletons of unquestionable Indian origin were brought to light. Another grave was disclosed in the spring of 1926, by the caving in of part of the steep river bank a little to the north of this place. Buried with the remains, according to information received, were a tomahawk, several arrow points, a quantity of fresh water mussels and five-cracked stones.

A short distance to the west of the burial place, there are traces of an ancient encampment on the north bank of the Lackawaxen at the base of the bold, jagged promontory, which is such a conspicuous feature of the landscape and called Prospect Rock.

PROSPECT ROCK STATION

What may be regarded as the most important rock shelter in Delaware River valley between Hancock and Dingman's Ferry was discovered in August, 1928, on Prospect Mountain, less than a mile north of the village of Lackawaxen, on the Pike County side of the river. Although the researcher had come to know this region ever since 1922 and had often passed within a hundred steps or so of this particular den, he had all these years failed to detect it, hidden as it is amid a jungle of cliffs and broken ledges on a steep, wooded hill slope. Being

at the base of a high-level cliff, it is not only well screened from sight but difficult of access, calling for much climbing and scrambling up and down through a maze of tumbled rocks.

So effectively is it concealed that one may be within a stone's throw without noticing or suspecting its presence. Thus, from no point along the modern foothpath, leading from the Erie railroad tracks to the top of Prospect Rock, with its magnificent vista down the river valley, does the shelter come in view, though never more than a hundred feet away, nor can it be glimpsed anywhere from the level country at the foot of the hill, known as Holbert Flats. Here, only the crest of the cliff is visible, while the great cavity underneath is completely concealed from the beholder by intervening rock masses and the heavy stand of timber mantling the mountainside. Nay, albeit it is less than a two minutes' climb from the railroad to the rock, it cannot be descried until one is within fifty feet of it.

ITS SURROUNDINGS

Just below Holbert Flats the Lackawaxen empties into the Delaware at an angle of nearly ninety degrees. Immediately north of their junction rises a hill, the southeastern extremity of which is called Prospect Rock. To the south, overlooking the Lackawaxen, it terminates in unscalable, deeply seamed escarpments or crags, while to the east, dominating the southern or lower end of the flats and the Delaware beyond, its flanks are much less precipitous. The den lies on its eastward-facing slope, about 500 meters (550 yards) due west of Delaware River, at an elevation of some 50 meters above it and 30 meters atop the Erie railroad tracks, here skirting the base of the hill along a high embankment. The easiest approach to the rock is from a point about 100 meters north of the railroad bridge, whence there is a short ascent up the steep acclivity.

DESCRIPTION OF SHELTER

The beetling cliff of Devonian sandstone is about 40 feet high by 150 feet long, but was much more extensive prior to the advent of the quarrymen some twenty years ago, who blasted away its northward continuation. It faces east and directly in front of it is a rock-strewn wooded slope that is truncated by vertical ledges closely parallel to the railroad. The base of the cliff is undercut for a distance of 110 feet, forming an overhang of from ten to sixteen feet, with the outer etch of the roof projection averaging fourteen feet above the floor, but shelving downward to the rear wall, where the roof is about six feet high.

Much of the right-hand portion, about fifty-five feet long and constituting one-half of its total length, is reported to have collapsed some

time toward the end of winter of 1925, due no doubt to the expansive force of freezing water, which, seeping into fissures from above, shattered the roof and caused large chunks of rock to drop down. As a consequence, this portion is now covered with rock débris, the biggest slab weighing fully twenty-five tons. Under these circumstances, hardly anything could be done here by way of exploration save for a little digging here and there, but of this more anon. (See fig. 31.)

THE WORK OF EXPLORATION

Before beginning to dig up the left-hand section, which had escaped destruction such as just referred to, it was scrutinized for ancient smoke marks on roof and walls. As was to be foreseen, this search was attended with negative results owing to the nature of the local rock, which is of sedimentary origin and little resistant to the various agents of disintegration. With the outer layers constantly wearing away, exposing fresh surfaces almost from year to year, the interior face of the shelter had indubitably undergone great changes, the cumulative effects of which, however gradual they may have been, are what we see today. Accordingly, the modern surface of roof and walls is quite different from what the Indian was familiar with and, hence, whatever smoke marks there might have been, have long since disappeared.

The left-hand portion, some fifty feet long, consists of two compartments of approximately equal size, marked off the one from the other by a projection in the rear wall. The one to the left was undoubtedly superior in point of configuration, being at once deeper and more snugly enclosed sidewise, and, moreover, its floor was less obstructed by fallen débris. That the aborigines preferred it to the other was amply evidenced by the fact that it yielded more abundant remains.

When the author first visited it, he found in its center a rectangular pile of flat stones, four feet high, put up there, it may be presumed, by workmen from the aforesaid nearby quarry, to serve as a support for anvil and bellows. Yet though this shelter had thus been utilized, there was nothing to indicate that it had been interfered with in any other ways and, worst of all, that its floor had ever been dug into. Apart from a few protuberant stones the floor was generally level and partly covered with sod and a little vegetation.

Having cleared the covert of the heap of stones and all vegetation, the top soil was seen to be discolored. Although examined with meticulous care, it disclosed no vestiges of an archæological character, not even bones. This total absence of any and all surface signs appeared to be at variance with conditions observed elsewhere, where camp litter is not

infrequently lying exposed to view. Nor did shallow test holes dug at several spots reveal anything of a prehistoric nature. They showed, however, that the upper layer consisted of humus or blackish mold derived from decayed vegetable substances, overlying dark colored sand and gravel, embedded in which were many rocks.

THE FEAST PITS

As a first step in the excavation, the investigator deemed it best to dig a trench along the mouth of this compartment directly beneath the line of shelter, starting at the right and proceeding to the extreme left. Ultimately, this trench came to be twenty-five feet long by eight feet wide and nearly three feet deep, but instead of being confined to the shelter line, as was expected, the culture deposits, being seen to extend outwardly, made it necessary to excavate several feet beyond that line, or away from the protecting roof. (See fig. 24.)

As already revealed by the preliminary test holes, the topmost stratum of dirt, some five or six inches thick, was made up of humus on top, superposed upon discolored gravelly soil, enclosing rocks large and small, but devoid of prehistoric reminders save for a few bones occurring near its lower limit. This scattering of bones at the base of the top layer was a good omen and, indeed, immediately below this level remains of various kinds came to light in great profusion, such as fragments of pottery, chunks of chert or raw material for arrowhead making, fresh water mussels and animal bones. Of the latter, belonging mainly to deer, there were many hundreds, distributed pell-mell through the medley of darkish soil and stones, many of them split lengthwise for the extraction of the marrow and charred by contact with fire. Nor was there any lack of pieces of charcoal and heat-cracked pebbles, indicative of blazing camp fires.

Most of the potsherds were plain, others exhibited cord-markings or more elaborate designs of incised lines, impressed upon the collar or frieze of jars.

While excavating at this spot, one could not help thinking that it was the site of a huge pit—probably a feast pit because of the abundance of animal bones—measuring some eight feet long by six feet wide and twenty-five inches in depth. (See a1 on ground plan of shelter.) Many of the bones and sherds lay quite outside the overhang in an area where the floor tilted downward, meeting the hill slope. The total thickness of the culture bearing stratum was no less than twenty inches.

Immediately to the left of this pit, along the line of shelter, a second

pit, apparently separated from the former by a tumbled mass of rocks, could be distinguished, also about five inches below the surface. (See a2 on ground plan.) It appeared to be approximately seven feet long by four feet wide and thirty inches deep. Like the other it teemed with refuse such as bones—probably more than a thousand—unio shells and broken pieces of pottery, both plain and ornamented. It contained, moreover, six netsinkers, made out of flat rectangular pebbles, grooved medially at the ends of the short axis and a single triangular arrow point of chert.

A third pit (see a3 on ground plan) seemed to fill all the remaining space in front of the covert at the extreme left of this compartment, being seven feet long by four feet wide and twenty-five inches deep, that is twenty inches of deposits after deducting the top stratum. It yielded hundreds of bones, broken pottery, unio shells, chips of chert and flint and an arrow point of triangular shape, fashioned out of flint.

GENERAL OBSERVATIONS

Numerous rocks, their total volume more than equalling that of the lighter dirt and aggregating more than four tons in weight, were come upon in the work of excavation. The heavier ones, weighing hundreds of pounds, proved quite troublesome, tightly wedged in as they were. It was fortunate, however, that no large trees grew near enough to anchor their tough roots in the subsoil, entwining the stones and making their removal still more difficult. Being distributed chaotically through the dirt, one can by no means be certain as to the exact number of pits there situated. For aught one knows, there may have been more than three of these, albeit of smaller size. The evidence afforded by these pits is such as to point clearly to frequent if brief visits on the part of the savage, visits that may have been made through centuries. During these trips to the den, he built his fireplaces now here now there, ever changing positions with the result that finally they came to overlap or coalesce the one into the other, leaving no sharp lines of demarkation. Such, in fact, may well have been the case with the fireplaces under consideration. Yet, on the other hand, the tell-tale signs, presented at this latter day, did seem to hint at the occurrence of three pits, obscurely defined though they were.

The multiplicity of animal bones in these pits was truly amazing, more than 2,000 of them being unearthed. Redundant though they were, they represented, in all likelihood, but a small fraction of the bones of the various game animals that were feasted upon under this rock, countless others having no doubt been tossed far out down the

rocky incline, where, lying in the open, they gradually crumbled into dust. In our mind's eye we visualize the ancient huntsmen crouching half way round the roaring fire, their backs and sides toward the inner wall of the den.

Some six hundred sherds, derived from approximately fifty jars, were turned up. They were most numerous in what has been designated as pit a, and here also most of the finer pieces, evincing Iroquoian ornamentation, were uncovered. With very few exceptions, the decorated sherds, all of them collar pieces, were represented by but a single fragment and they seemed to occur most plentifully throughout the 6-18-inch level. About one-third of the embellished sherds, dug up from the three pits, were of Iroquian type, whereas the others harked back to Algonkin origin or a combination of the two types.

THE INTERIOR PORTION

Between these deposits, that had apparently been made in connection with feasts, and the inner wall of the left-hand compartment, there was a level area, twenty-five feet long by eight feet wide, well protected from above by the impending ledge and to some extent on the sides, as already stated. Across it a second trench was dug, parallel to the first and closely contiguous to it, proceeding this time from left to right. The excavation along this line disclosed the existence of two fireplaces, both of them much less extensive than the feast pits and, besides, considerably shallower. (See fig. 32.)

The first of these, (b1 on the ground plan) was at the extreme left of the compartment between pit a3 and the jutting rear wall. The top layer of humus, sterile in refuse, appeared to be less than four inches thick and the culture deposit underneath penetrated to a depth of only fourteen inches, where it rested upon yellow gravel. Covering about twelve square feet, it contained far fewer bones and sherds than any of the three outside pits, though surpassing them greatly in other types of remains, to wit, four perfect triangular arrow points, two of flint and two of argillite, four broken points, all of them triangular, a bone tool, a little over an inch long and highly polished to a sharp point, which may have done service as an arrow point or as an awl, part of a finely polished pestle, elliptical in cross section and made out of close-grained black sandstone and, lastly, several hundred small chips, of chert, flint, argillite and yellow jasper, the latter occurring mostly near the top of the deposits. One of the rimsherds was distinctly Iroquois in that it exhibited the incurved neck and the raised angular collar, embellished

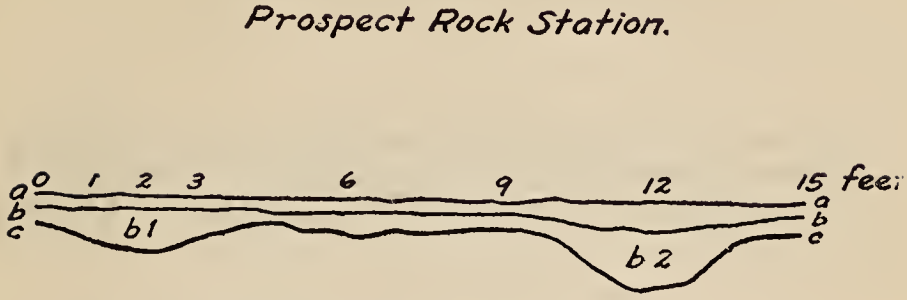
with oblique lines and rows of deep incisions and with a conventional human face across the angle.

Another fireplace, b2 on the ground plan, was struck in the very center of the compartment, five feet to the right of fireplace b1, between pit a2 and the rear wall. The intervening area between b1 and b2 was far from being destitute of refuse, for it furnished its quota of not a few animal bones, unio shells and small sherds, some of them buried down to the fifteen-inch level. The top stratum covering the culture deposits at this pit, appeared to be fully seven inches in thickness and the deposits could be traced to a depth of twenty inches where they faded into coarse, yellow gravel. (See fig. 26.)

Measuring fifteen square feet in extent, it was a good-sized fireplace but one quite barren of artifacts since nothing was recovered except a broken triangular arrowpoint of flinty material and a neatly-chipped wedge-shaped tool of yellow jasper, an inch long, which may have been employed as a scraper. Both of them were superficially inhumed. There were further noted several dozen small chips, principally of flint and chert, scattered through the upper layers. The subsoil filling this pit was, as usual, a mixture of earth and stones, embedded wherein were some pottery fragments together with quantities of bones.

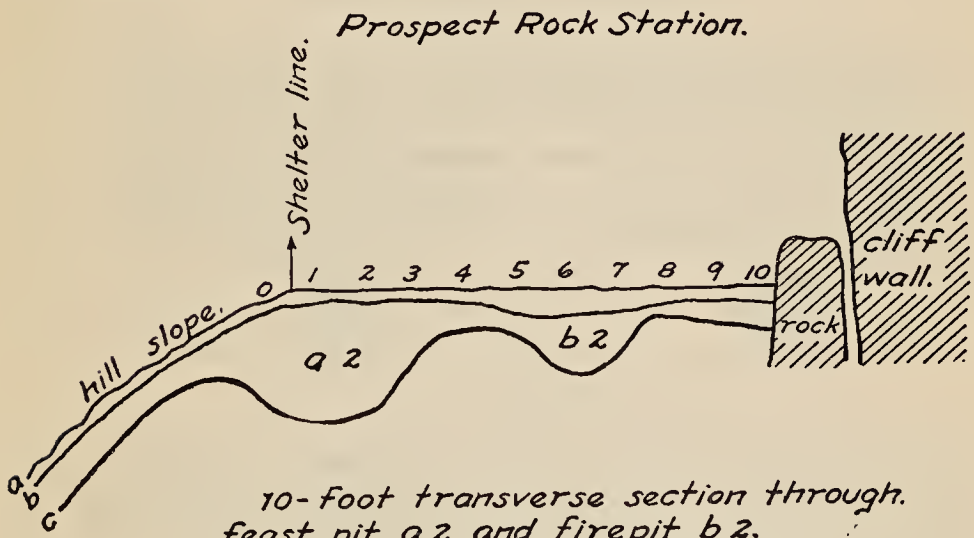
A third trench, twelve feet long by three feet wide, was dug from left to right close to the rear wall. The top soil overlying the Indian layers was a coarse yellow gravel, full of rocks and from three to five inches in thickness. At its extreme left, near a recess in the cliff wall, that was completely occupied by a big stone, there came to sight at a 5-inch level a bed of crumbled unio shells associated with flint chips and large bones. Additional bones were noted farther down, but at a 10-inch level all such traces disappeared.

The first eight feet of this trench furnished very little camp litter apart from the ubiquitous bones and an occasional pottery fragment, none of which occurred at a depth exceeding twelve inches. The encompassing soil was darkish brown, yet no fireplace could be distinguished until near the end of this trench. Here, close to an oblong mass of rock, adjoining the rear wall, a fairly well defined fireplace was laid bare, marked b3 on the ground plan of the shelter. Its upper limits reached to within six inches or so of the surface, while its bottom was at a 29-inch level. Its dimensions, as ascertained by the extent of the fire-stained soil, were about three feet square on top but much less at the bottom. In fact, when fully dug up, it resembled a cone-shaped depression. Though replete with bones, it contained nothing but a perfect triangular arrow point, one and a half inches



Cross section of 15-foot trench through firepits b1 and b2 in left section of shelter. a-a. Modern surface; b-b. Surface of culture deposits; c-c. Lower level of culture deposits.
Drawn true to scale.

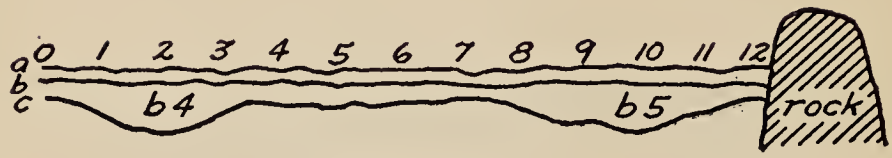
FIG. 32



10-foot transverse section through feast pit a 2 and firepit b 2.
a. Modern surface; b. Indian level.
c. Lower limit of Indian level.
Drawn true to scale.

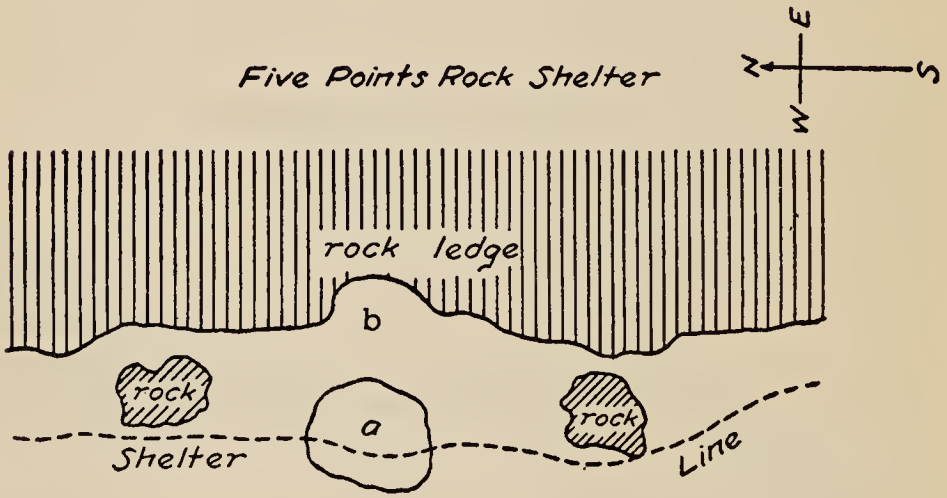
FIG. 33

Prospect Rock Station.



Cross section of 12 foot trench through fireplaces b4 and b5.
a. Modern surface. b. Top of Indian layer.
c. Lower limit of culture debris.
Drawn true to scale.

FIG. 34



Ground plan of Five Points' rock shelter, 3 miles north-west of Rowlands, Pike County, Pa. Sheltered space between two rocks about 16 feet, maximum depth 10 feet. Westward exposure. a. Site of fireplace; b. Site of some refuse.

Scale of feet.
0 10 feet.

FIG. 35

long, manufactured out of argillite, and a small quantity of plain pottery pieces.

It is worth noting that the remaining area amid the recognizable pits contributed additional camp litter of the usual sort like animal bones, including many deer jaws, fresh water mussels, fractions of the carapace and plastron of turtles, flakes and potsherds, most of which were apparently concentrated at the 8-16 inch level. Particularly rich in such refuse was the 5-foot patch between a1 and b3 (see diagrammatic section of the shelter) and from it were obtained several ornate sherds of Iroquois pattern. The greatest depth at which they lay approximated fifteen inches.

Bordering this patch on the right was a large block of rock of moderate thickness, weighing about half a ton, marked c on the ground plan, the hollows under which seemed crammed with bones. And so it was, for when pushed out of the way by means of a crowbar, hundreds of bones, bleached and weatherbeaten, preponderantly cervine and including numerous jaw bones, were seen littering a hard, unyielding rock surface. Not being covered by any dirt deposits, such as had evidently formed on top of the culture strata since the Redman's last visit to this shelter, we may be warranted in concluding that this stone had fallen down on the bones during Indian occupation, thus preventing their being buried or spread over by soil. For, surely, had the rock dropped down some time after the Indian's final leave, dirt would certainly have accumulated atop the bones, precisely as it did in the other parts of the covert. And, what is still more to the point, the level at which they lay was concordant with the upper levels of the culture deposits near-by and was therefore five inches below the modern surface. In other words, had the rock been absent, this level would have been aggraded by some five inches, thus making it flush with the circumjacent surface.

THE RIGHT-HAND COMPARTMENT

As previously remarked, this section was much encroached upon by rocks, obstructing its center as well as its inner portion along the back wall. In consequence, it must have been less desirable for habitation and it may therefore have been used only when the place was crowded with visitors. It is of about the same size as the other compartment, being twenty-five feet long and having an overhang of from eight to fourteen feet.

Two lengthwise trenches were dug through what seemed to be the best parts of the covert, viz., one on the left, between the shelter line

and the cliff wall, the other on the right, along and near the shelter line. The remaining and less promising sections were examined by test holes. The first trench, beginning to the right of the fallen stone, just discussed, cut straight through the center, parallel to the cliff. It grew to be twelve feet long by five feet wide and ended at a large boulder in the middle of the compartment. (See fig. 34.)

Right at the start of the excavation a fireplace could be identified, marked b4 on the ground plan, indicated by such familiar signs as discolored soil, bits of charcoal and fire-split pebbles. It was overlain by about four inches of dark soil, revealing no vestiges of archæological significance, beneath which the culture débris continued down to a 12-inch level, after which there came a sterile layer of yellow gravel and stones.

As far as could be determined, this fireplace was four feet long by three feet wide and within it there were found scores of bones, sherds, both decorated and plain, an artifact of flint, an inch long, triangular in shape and resembling a scraper, but which may also have been a reject, discarded because of the intractability of the material, the base of a large triangular point, of gray chert, and the tips of two slender points, of flint and chert, respectively.

Another fireplace, b5, of about the same dimensions and depth as b4, was discernible four feet farther to the right. Along with the inevitable bones, it contained a fairly good specimen of aboriginal handiwork, namely, a slender triangular arrow point, of argillite, an inch and a half long. Another specimen, slightly imperfect, was a drill or borer of flint, an inch long. In addition there came into view, mostly at an 8-12 inch level, some forty sherds of Algonkin type, all of them fabric-marked, of the same thickness and color and therefore apparently belonging to a single jar. It remains to be said that the dirt between these pits was replete with bones and small unornamented sherds.

The second trench, also twelve feet long by four feet wide, ran just within the shelter line, as stated above, and wound up at a large square block, which, to all appearance, marked the limits of this compartment, since beyond it no vestiges whatever could be detected, the ground being far too rocky and quite unsuitable for camping. Along this trench there lay two more firepits, b6 and b7, overlain by a sterile top stratum some five inches in thickness. From pit b6 there was secured at a 6-inch level a triangular flint point, a little over an inch in length, with one corner of the base knocked off, and from pit b7 a tiny fragment of a point, also of flint. Both pits teemed

with bones and pottery fragments, most of the latter being paddle-marked and quite small, averaging the size of a half-dollar.

The section nearest the rear wall was glutted with rocks and its general appearance was such as to discourage digging. Yet, on removing two large stones from within a niche in the cliff wall, c2 on the ground plan, there was come upon a large fabric-marked rimsherd, showing a slightly incurved neck and, hence, suggestive of a combination of Iroquoian and Algonkin ceramic technique. No further finds were made amid and beneath the stones along the rear wall and the adjacent top soil was yellow gravel, totally unlike the surface layers in the left-hand compartment. However, when digging around the square block, referred to above as denoting the limits of this compartment, there was noted, at a 5-inch level, a bed of fresh water mussels, lying in contact with it and on the side which faces the rear wall (c3 on the ground plan).

THE CAVED-IN PORTION

Reference has already been made to the fact that the right-hand portion of this den, constituting one half of its total length, was almost entirely covered with rock detritus, much of which may have dropped off the roof centuries ago, conceivably long before the red hunter's initial visit to this place. Thus, the section immediately adjoining the one just discussed, he may have found unfit for camping ever since he first stepped under its hospitable roof, beholding the stones in the identical spots they now occupy, all but immovable and deeply fixed in the floor. At any rate, investigation disclosed that he had not availed himself of this part of the shelter, albeit there were not a few patches of soil amid the fallen boulders where he could have kindled his camp fire.

Quite a different tale seems to be unveiled, however, by the examination of the extreme right-hand section. As previously explained. this section was relatively free from stones up to the early spring of 1925, when part of its roof, heaved by frost, fell in, with huge slabs becoming detached from its nether side, piling up on the floor, layer atop layer. Ere this happened, it was a commodious covert, old woodsmen declare, one in every sense comparable to the section on the left and one in which arrow points are said to have been picked up, superficially inhumed.

The author's own investigation tends to support the statement, made anent the finding of prehistoric objects under this part of the cliff, since he unearthed a small quantity of unio shells and bones when

digging up the dirt in the few narrowly circumscribed spots between the fallen débris and beneath it, as far as he could reach (see c c on the ground plan). Whatever else in the way of aboriginal treasures there may be concealed under these rocks, removable only by powerful charges of dynamite, is wholly conjectural. Presuming that it was once as good a covert as the compartment to the left, there is no reason why it should not prove equally rich in remains of primitive industry.

The task of exploring this station was greatly facilitated though the assistance rendered by Gottlieb Kuhn, a resident of Lackawaxen, who helped to pull out many of the heavier rocks encountered within the feast pits.

THE TESTIMONY OF THE POTTERY

Some interesting deductions may be made from the study of the pottery remains, recovered at this station. In the first place, the large number of sherds, amounting to some eight hundred, hints clearly at oft-repeated aboriginal visits, mostly, no doubt, of brief duration and begun indefinitely long ago. In the second place, the decorative designs exhibited by many of the sherds as well as the texture of the clay serve to elucidate some phase of the cultural complex of the ancient rock dwellers, revealing, inter alia, close relations, friendly or otherwise, between them and their powerful neighbors, the Iroquois. Obviously, the large proportion of pottery fragments of Iroquoian character, here noted among people of pure Algonkin stock and in definitely Algonkin territory, shows convincingly the strong cultural influence of the Iroquois or the extent to which the former had become subjected to it.

To be more explicit, of the one hundred and eight rim portions, here extant, only three, belonging to two jars, were of undoubted Algonkin type by virtue of the absence of the projecting collar and also because of the cord-markings and stamped pits covering the receding neck, not to mention the coarse texture of the clay. Seven others, remnants of three jars, evinced a blending of Iroquoian and Algonkin technique, having the constricted neck and a slightly raised narrow frieze, embellished, in one case, by slanting corded lines that extended across the lip, in the second, by four incised parallel lines, margined near the lip and neck by vertical incisions and, in the third, by vertical rows of dots, carried over the lip, while the neck is spanned by vertical fillets. Four more sherds, representing four vessels, also collar pieces, were decorated with rows of indents and vertical and horizontal lines. The composition of the clay was coarse, it

being tempered with bits of quartz, quite unlike that of Iroquoian ware, which is invariably well levigated and tempered with sand or other mineral matter, finely ground, thus permitting of a smooth finish.

The remaining ninety-four collar pieces were all of them decorated after the Iroquoian fashion and in this connection it will be recalled that ornamentation was usually confined to this portion of a vessel. As far as could be determined from their fragmentary condition, fifty-nine of the pieces gave no indication of the constricted neck, albeit the decorative designs displayed were plainly suggestive of Iroquois fictile art, as just stated. They illustrated a wide range of artistic elaboration, making use of incised parallel lines, horizontal or slanting, oblique rows of punctate dots, indented lips and pits made with an angular punch. Since but three of these were duplicates—six doubles in all—the number of pots of which they once formed part, must be estimated at no less than fifty-three.

As for the residual thirty-five sherds, they were collar-neck portions, belonging to thirty-three jars, there being but two doubles. The ornamentations, with which they were covered, resembled those just described and may therefore be assigned to Iroquoian ware. A brief description of some of the more ornate pieces will not be out of place.

1. An exquisitely adorned sherd, exhibiting oblique incised lines à la chevron, margined above and below by two encircling fillets, with a row of deep slanting indents, where the collar meets the neck.

2. A row of shallow indents adjoining a flat lip, beneath which is a series of horizontal and slanting lines, bordered just above the neck by deep pits.

3. A row of round dots below the plain lip, overlying a series of parallel lines, alternating with rows of dots, with an encircling band of deep pits along the bottom of the frieze.

4. A series of slanting indents near the lip, below which is a band of four parallel lines, topping a combination of vertical and oblique lines, that alternate with rows of pits, stamped with an angular punch.

5. Vertical indents below a plain lip, resting above a band of parallel lines, with zigzag lines farther down and a series of angular notches, where the collar merges into the neck.

6. An encircling band of indentations beneath a plain lip, overlying closely applied slanting lines, chevroned or arranged in pyramids.

7. Shows only lower section of frieze, decorated alternately with oblique lines and rows of short incisions.

8. Lower portion of frieze, of angular form, spanned by deeply incised vertical lines and margined above the neck by slanting notches.

9. Lower section of frieze, displaying a combination of chevroned incised fillets and groups of shallow pits, bounded near the neck by an encircling band of oblique notches.

10. Lower frieze section, exhibiting an intricate pattern of horizontal and slanting lines, relieved by rows of stamped indents and margined along the upper portion of the neck by a row of deep angular pits.

11. Lower section of frieze, angular, embellished with shallow bands of oblique lines and rows of short indentations, besides showing a conventionalized representation of a human face athwart the angle.

Examination of the plain and paddle-marked sherds, of which there were many hundreds, revealed that the former were generally of a finer texture than the latter. The tempering medium used in the preparation of the paste appeared to have been fine sand, while that of the net-impressed sherds was found to have consisted largely of bits of quartz, resulting in a rough surface. As it is known that the Iroquois bestowed great care on the trituration of the clay paste in contrast to the practice usually observed in this respect by the Algonkin potters, we may safely assume that the plain sherds with their smooth finish were of Iroquoian origin or, else, an imitation of this type on the part of the Algonkin.

Certain it is that the day is past when we could have ascertained whether the pottery vessels of Iroquoian character, of which so many fragments have been recovered at the Prospect Rock station, were made by the Iroquois themselves and obtained from them through barter, or whether they had indeed been manufactured by the Algonkin, having adopted from the former their method of pottery-making. By actual count, the ratio of the plain or fine-textured sherds was found to be slightly in excess of the textile-impressed and much coarser sherds. Significant as this fact is, it agrees entirely with what was observed, when making a comparative study of the ornamented rim portions, which showed the predominance of Iroquoian ware over that of the Algonkin.

While ornamented pieces furnish a more or less reliable clue for purposes of identification, this is by no means the case with plain or cord-marked pieces. There are, doubtless, difficulties in the way of studying pottery remains that are so little differentiated as plain and even paddle-marked sherds. Although it is easy enough to distinguish at a glance between plain and corded pieces, compared among themselves, each in its own category, it is often difficult to recognize individual differences and to arrive at a definite estimate as to the number

of vessels to which they severally belonged. Judging, however, from the varying thickness, color and character of the clay, the latter determined by the tempering medium used, there can be no question that these sherds were derived from a multitude of jars, though their actual number must remain uncertain.

We may safely assume that many of the plain pieces are matched by the decorated sherds of Iroquoian type, whereas the hundreds of paddle-marked fragments, represented by but very few rim portions, also no doubt matched to some extent, are presumably the remains of many additional paddle-marked vessels, come to grief under this shelter. If so, the number of broken pots, calculated at eighty-six, will have to be added to and, probably, we shall not be far wrong in computing their total at one hundred.

SUMMARY OF FINDS

Following is a list of the objects of primitive origin dug up under the Indian rockhouse on Prospect Rock:

Triangular arrow point, perfect, of chert, an inch and a half long.
Triangular point, of flint, over an inch long.
Triangular point, perfect, very slender, of argillite, an inch long.
Triangular point, perfect, of flint, an inch long.
Triangular point, perfect, of flint, less than an inch long.
Triangular point, perfect, of chert, less than an inch long.
Bone point, an inch long.
Drill, of flint, less than an inch long.
Wedge-shaped scraping tool, of yellow jasper, two-thirds of an inch long.
Fragments of points, of flint or chert.
Some two hundred flakes, of flint, chert, argillite and jasper.
Six netsinkers of the square flat type, notched medially.
Portion of a small pounder of black, close-grained sandstone.
About four hundred potsherds, not counting hundreds of very small ones.
Some four thousand animal bones, mainly of deer, including some fifty jawbones.
Quantities of unio shells.
Fragments of the carapace and plastron of turtle.

RESUME

Passing in final review the evidence deducible from the culture deposits extant at Prospect Rock station, one cannot but be impressed

with two of its features, outstanding above all others, namely, the prodigious quantities of bones, on the one hand, and the large number of pottery fragments, on the other. While, obviously, these features bear eloquent witness to the fact that this place was a favorite abode of the indigenous Americans, they reveal considerably more. Thus, as regards the bones, examination disclosed that they belonged to many species of animals. Though only provisionally identified, we may assume that they had been derived from all the game animals, anciently inhabiting this region, to wit, bear, wapiti, catamount, wild cat, wolf, fox, woodchuck, raccoon, skunk, beaver, rabbit and wild turkey. As elsewhere, they were preponderantly cervine or belonging to deer, since the Redman preferred venison to all other meats. Some of these animals, like wapiti and wild turkey, have since fallen victim to the white man's short-sighted folly, while most of the others are nearing extinction. The Indian's, forsooth, was a menu diversified enough to suit any palate!

Speaking of the pottery remains, scrutiny disclosed that they were ascribable to at least one hundred jars. Eighty-six of these could be identified, beyond reasonable doubt, on the basis of varying decorative designs, while the determination of the others was far less positive, finding its vindication in different types of paddle-markings, thickness and texture of clay. Most of these remains illustrated, as previously set forth, the cultural prepotency of the Iroquois and, indeed, it is hardly questionable that seventy-five per cent of them were attributable to this influence. Again, the abundance of these remains testifies to the fact that this rock was much haunted by squaws who alone were concerned with all that pertained to pottery, lugging it about from place to place when on the march. The circumstance that so few of the ornamented sherds were duplicates is something of a mystery. It may, however, be accounted for on the theory that the damaged vessels were taken away by their owners. Otherwise, that is, if left under the rock, where they would eventually have broken asunder, there would have been many more sherds per pot, especially of the decorated pieces, instead of only a few or even single ones.

The paucity of arrow points was passing strange when contrasted with the superfluity of animal bones and sherds. It may be indirectly regarded as another indication of predominant female occupation. Since all of the points were of triangular shape, we are again reminded of Iroquoian influence exerted upon those who sojourned here. As a matter of fact, the Iroquois arrow points seem to have been chiefly of this type, whereas those of the Algonkin were largely of the stemmed

and notched variety. Some two hundred chips were noted, lying mostly in the extreme left-hand section of the covert and at comparatively shallow levels. They attest a small workshop or a place where stone tools were fashioned. The occurrence of netsinkers and fresh water mussels implies visits on the part of prehistoric anglers. That many a fish caught in Delaware or Lackawaxen River, was here consumed by them, may be taken for granted, albeit not a vestige of fish bones was found, no doubt because of their perishable nature.

Touching upon the important matter of drinking water, the nearest supply today is a streamlet, tributary to the Lackawaxen, running north and south along the foot of Prospect Mountain, some thirty meters below the shelter. While this may have been drawn upon, inconveniently distant though it was, a small spring, flowing intermittently after heavy rains, is said to have existed atop the high cliff or directly above the covert. If so, this spring was probably perennial in aboriginal times, when all the mountain was cloaked with a dense growth of trees, and from it, being closest to the rock, the Indian may have secured his supply of potable water. Doubtless, there were once several much traveled trails leading up from the lowlands to the shelter. Today, there is not a trace of these, serving to indicate the course they took.

That this covert was invaded ever and anon by bands of savages may be inferred from the presence of the huge pits with their contents of numberless bones, bearing mute but eloquent witness to aboriginal feasts. Such invasions were likely to take place in conjunction with the great hunts during autumn and early spring, when the furry animals were in prime condition. At these times the redskins roamed far and wide within their allotted hunting territories, eagerly availing themselves of the protection afforded by sheltering ledges, and often, no doubt, they sought this particular den, coming hither burdened with the trophies of the chase, partaking of food and stretching themselves around the blazing fires in front. The bones were tossed aside or thrown into the pits together with other camp litter and these pits kept on growing larger, their contents ever accumulating with each human influx.

Inquiry into the problem as to which people made most frequent use of this den, the presumption is in favor of assuming that they hailed largely from the Indian town once occupying the southern portion of the river bottoms, now called Holbert Flats. As this village appears to have existed for a long period of time, if we may judge from the enormous quantities of prehistoric objects recovered therefrom,

there is every reason to believe that its inhabitants were well acquainted with this place and that they often stopped there, when gathering nuts and berries round about on the mountainside.

It will be recalled that a layer of humus and soil, about five inches thick, was found overspreading the culture deposits in the left portion of the shelter. Apparently an undisturbed layer, it had slowly accumulated on top of the deposits ever since the Indian ceased coming here. In other words, what was once the Indian level had been aggraded five inches through a natural process and the materials used in this process were derived from decayed mineral and vegetable matter. As it is known that under average conditions this aggradation proceeds at the rate of about two inches per century, we might conclude that about 250 years had elapsed since the Redman camped under this rock. While this may be true, historical records prove that the last of the aborigines did not depart from this vicinity until the close of the eighteenth century. As it is known, moreover, that Tom Quick, surnamed the Indian slayer, did not cease his war of extermination against those in this region until about 1800, it would seem altogether credible that the aborigines continued using this den at least as late as the latter half of the eighteenth century.

An unsolvable chronologic problem is involved in the opposite inquiry, viz., the question of the antiquity of the oldest culture deposits at this station. Investigation of the deposits made it plain that they all belonged to a single or homogeneous horizon of culture. Invariably the most ancient remains may be looked for farthest down. Now, the extreme depth at which aboriginal refuse occurred, was found to be about twenty-five inches. However, the refuse lying at this level did not appear to be older or of a different character from that of the upper strata. All that can be confidently asserted is that most of the cruder pottery seemed to be at the lower levels, while the more ornate pieces occurred higher up, i. e., above the 15-inch level. Further, none of the arrow points and chips lay at a depth exceeding ten inches and may therefore be assignable to a more recent period of occupation. Still, after due consideration of all the available data, inadequate as they are, the query as to when the Redman first stepped under this rock remains as inscrutable as ever.

THE FIVE POINTS STATION

There is an aboriginal rock shelter in the rough and hilly woodland tract, known as Five Points, near the hamlet of Bohemia, about three miles north of Rowlands and west of the road leading from that place

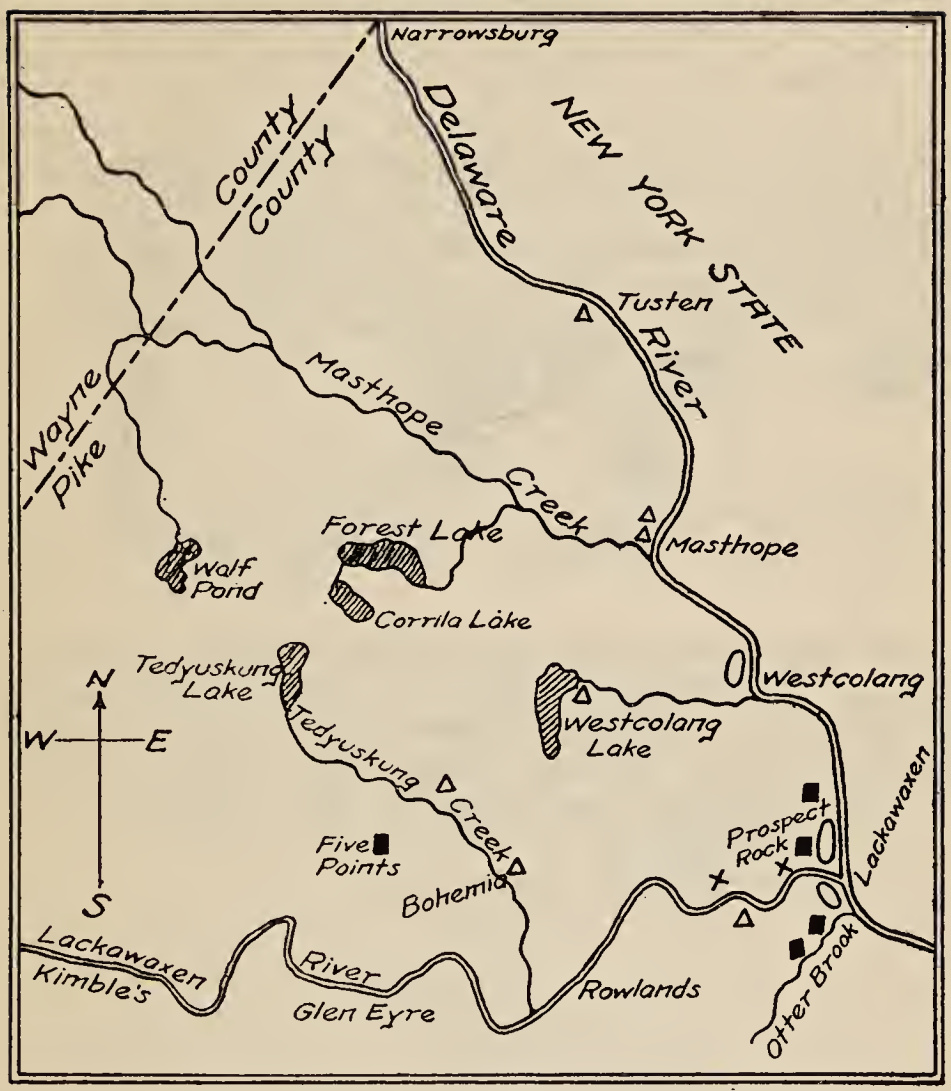
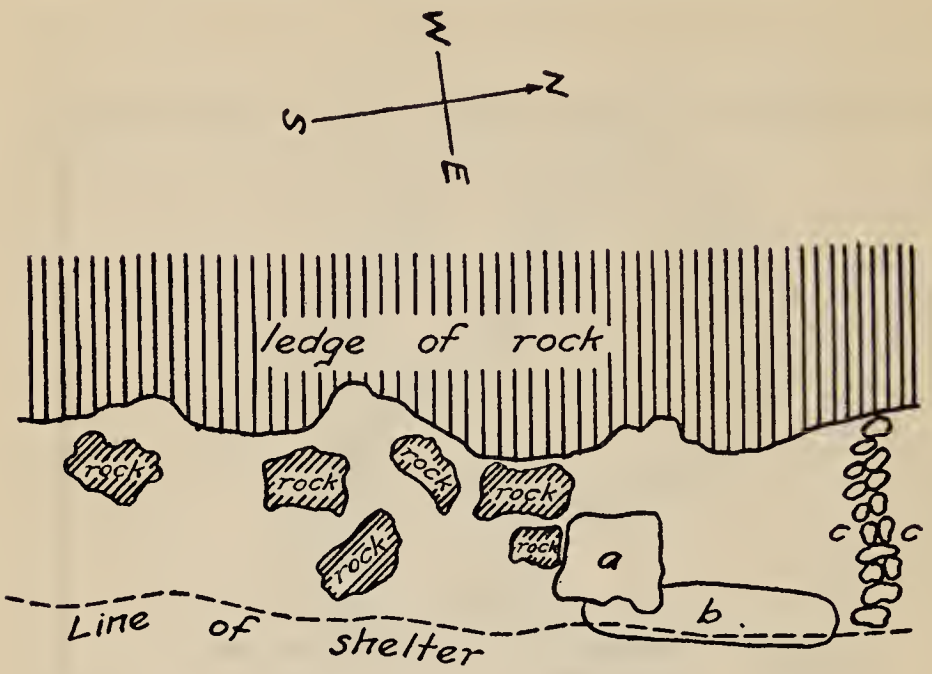


Chart showing site of Prospect Rock and Five Points shelters. ■ rock shelters. O village sites. △ camp sites. XX. scattered remains.

Scale.- 5 miles to 3 inches.

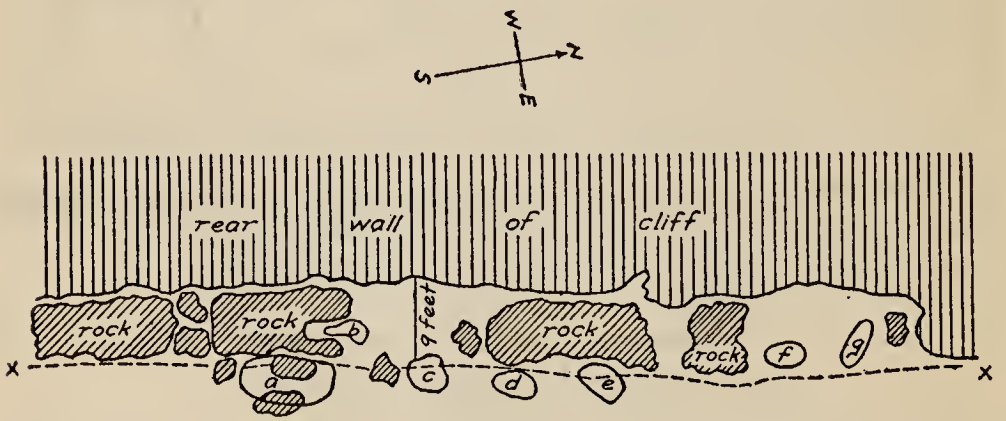
0 1 2 3 4 5

FIG. 36



Ground plan of Otter Brook shelter, lower one, at Lackawaxen, Pike County, Pa. Length of shelter about 25 feet; only right hand position used, 12 feet wide by 10 feet deep.
a.— Position of pottery and chips.
b.— Fireplace.
c.c.— Modern stone wall.

FIG. 37



Ground plan of Otter Brook shelter, upper one, Lackawaxen, Pike County, Pa. Length about 100 feet; uniform overhang of about 9 feet.
a.b.c.d.e.f.g.— Fireplaces.
x---x — Shelter Line.

FIG. 38

to Forest Lake. Tedyuskung Lake is two miles northwestward from it and Lackawaxen five miles to the east-southeast, as the crow flies. The topographic map of this section not being available as yet, it was quite out of the question to fix its exact situation on a chart made from a small-scale road map. (See chart.) It is a locality hard to get to and difficult to find, sequestered as it is within a rocky, pathless wilderness, albeit of limited extent, all overgrown with trees and shrubbery.

An extensive, cliff-like eminence traverses this tract from north to south and at a point where it attains its greatest elevation of some twenty-five feet there is an overhang of ten feet by sixteen feet long high above the floor, which is stony and flanked by masses of fallen rock. (See diagram of shelter.) It opens toward the west, thus receiving much sunshine, but of water, be it a spring, a brook or a swamp, there is no sign within a quarter of a mile. A few weather-bleached bones and broken fresh water mussels lay scattered over the floor as unmistakable tokens of the Redman's whilom presence at this spot. (See fig. 29.)

On excavating along the front of the covert traces of a fireplace were detected marked a on ground plan, about an inch below the surface. The mixture of fire-stained dirt and stones, with which it was filled, yielded a varied assortment of primitive refuse, to wit, about a hundred bones, mainly of deer and all of them split for the extraction of the marrow, a quantity of unio shells, a score or so of small plain potsherds, finely tempered and with a smooth finish such as characterizes Iroquoian earthenware, a few flint chips and one netsinker of the flat oblong type, nicked medially at opposite points of the short diameter. The dimensions of this hearth were four feet square by eight inches deep. A recess in the rear wall, marked b on plan, directly opposite this hearth revealed additional bones and unio shells, lying half buried in the floor or immediately beneath it.

The sparseness of the primitive testimonials is suggestive of but a single visit on the part of the savage who, judging from the occurrence here of pottery fragments, came accompanied by his squaw. As this locality is remote and not readily accessible even at the present day, having probably been a mile or so from the nearest prehistoric trail, it may be suggested that the hunter and his consort wandered this way for a definite object, one considered urgent enough to make them leave the beaten track and face the asperities of the tangled wilds. And this object, we trow, was not merely the allurement arising from

the chase, but the gathering of nuts and berries and, perchance, the making of maple sugar.

What may have been a hunters' camp was situated on the level stretch of ground near several springs on the Quick farm, a short distance to the east of Tedyuskung Creek and a little over a mile east of the covert just discussed. Here, spearheads and other artifacts have often been turned up by the plow. Another camp site, also on the easterly bank of Tedyuskung Creek, was noted a mile below the Quick farm. The occurrence of these sites along this stream—and there may have been others now not recognizable—hints at an aboriginal pathway skirting it all the way from Rowlands, on Lackawaxen River, to Lake Tedyuskung and the numerous tarns, dotting what is at present the Forest Lake Club property.

LACKAWAXEN

What may have been an important aboriginal settlement or town of some permanence lay on the high sandy fields south of the confluence of Delaware and Lackawaxen rivers, at Lackawaxen, a name anciently spelled Lechauwek'sink. A superabundance of artifacts of Indian handiwork have been gathered on this site. Today, all of it is covered by an Erie railroad yard and large sections of the top soil have been carted off. Delaware River immediately below the bridge is usually shallow enough to permit of being forded and having been a wading-place of the redskins, it continues being known as Minisink Ford.

OTTER BROOK VALLEY

A good half-mile southeast of the junction of the two rivers is the mouth of Otter Brook. It is a swift-flowing stream, heading a mile and a half to the south among the hills, 1,100 feet above sea level, whence, in its abrupt descent to the river, it drops no less than 500 feet. The vale, through which it winds its way, is hemmed in by steep and heavily timbered mountainsides, running north and south, their slopes traversed by precipitous crags, rising one above the other in the midst of a tumbled wilderness of broken ledges.

THE LOWER STATION

Along the rocky acclivities west of Otter Brook two Indian rock shelters were found, lying some 500 meters apart and within two-thirds of a mile of its mouth. Although both were equally interesting as landmarks of a past age, they contrasted greatly with reference to their relative significance. The lower and less important station is at the bot-

tom of a vertical cliff, facing east, some fifty meters west of the brook and within a stone's throw of a never-failing spring, bubbling out of a layer of quicksand and therefore called the sand spring. The escarpment is a long one and undercut for a distance of twenty-five feet or so, yet the resulting cavity underneath is choked with detritus or fallen rock excepting a portion to the right, twelve feet wide by ten feet deep, which is not so obstructed.

Being a good recess and close to a quarry, now abandoned, the workmen used it as a blacksmith shop, improving it still further by erecting a stone wall along its front and sides. That its floor also had been tampered with, is altogether probable, yet nothing could be learned as to the extent of the changes here wrought. Accordingly, the evidence derived from its exploration cannot be considered as conclusive enough to permit of definite inferences pertaining to the real character of this place. (See fig. 37.)

Having demolished the stone wall and cleaned out the leaves and stones that had accumulated on the floor, nothing of a prehistoric nature was noted on the surface, thus exposed, yet, whether, as just remarked, this was the original surface, admitted of grave doubt. The subsoil was composed of a deposit of fine gravels, about fifteen inches thick, resting upon bed rock. While its upper four inches were devoid of traces, numerous chips came to view below that level in the interior portion of the covert. In fact, there were several hundred of these, all of them diminutive and of yellow jasper, save one which was flint.

Digging a trench along the front, where the wall had stood, a heavy layer of darker soil was encountered, a few inches below the ground, wherein were embedded additional jasper flakes along with about forty fragments of pottery and a small quantity of fractured bones, distributed confusedly through the débris down to rock bottom. Eight of the sherds were decorated with incised parallel lines, suggestive, it seemed, of Algonkin types and apparently belonging to two jars. The bones were mostly of deer, but included pieces of a turtle shell and a muskrat tooth.

The layer of dark soil extending along the entire front of the shelter, denoted undoubtedly the position of one or more fireplaces. The distribution of the refuse, however, was not co-terminous with its extent, but was confined to the left foreground. (See ground plan.)

Whatever may have been the condition of this shelter in the day of the savage, whatever the character of the culture remains—and these may not at all have been meddled with—he discarded or lost when

tarrying here, can only be conjectured. Yet in our endeavor to ascertain the facts, we must reject all speculation, being, instead, guided solely by what we can observe today. Sparse as this evidence is, it warrants, for one thing, the conclusion that this place was an arrowhead maker's workshop. He worked exclusively in jasper and since the flakes he struck off from the nodules were of the finest, many hundreds of them, we may presume him to have been a master at his art.

As for his exclusive use of jasper, it may betoken the most recent phase of primitive culture. In truth, there is not a little evidence to the effect that this mineral came to be more generally employed only during the last stage of the stone industry, viz., the seventeenth century, prior to which time argillite, chert, flint and quartz seem to have been the principal raw materials, at least in this part of the country, for the manufacture of projectile points.

THE UPPER STATION

This station is about one-third of a mile farther up the valley or some 500 meters south of the lower place. Being at once difficult of approach and hard to find, hidden as it is in the thick woods amid a veritable maze of disintegrated rock masses, the present author could easily have missed it, never even suspecting its existence. Luckily for the survey, however, this contingency was averted by Tony Bockel, a local hunter, intimately acquainted with the country for miles about. In fact, but for the information furnished by him, it would in all likelihood never have come to be included among the many stations here under consideration. Referring to it as the old Indian cave, he kindly volunteered to act as a guide. Crossing Otter Brook, a six minutes' hard climb up the rough, talus-strewn slope brought us face to face with one of the largest rock cabins in all this region. Moreover, the multiplicity, if not the variety, of the remains, subsequently to be unearthed, proved it to have been one of the most important or most frequented of the thirty-odd prehistoric rock retreats, thus far discovered in this territory.

DIMENSIONS AND SHAPE

Perched upon the mountainside, one hundred and fifty feet above the brook, there is a great escarpment of massive sandstone, some two hundred feet long by twenty feet high, running north and south in a straight line. Though compact and solid enough in its upper portion, with scarce a fissure or crack, erosion had been at work along its base, resulting in a concavity one hundred and fifty feet in length by nine feet in depth. The superincumbent portion thus hollowed out below, is

six feet above the ground in front, but less than four feet near most of the interior wall. This is not owing to its shelving toward the rear but to the fact that large blocks of flat rock, several feet in thickness, encumber most of the floor, thus reducing the height of the covert. While its left-hand section is cluttered with rock débris, that on the right is comparatively unobstructed for a length of one hundred feet or so. Consequently, the aborigine made extensive use of it, as is evidenced by the abundant remains of his handiwork here found. A glance at the accompanying ground plan of this covert will show, however, that even this section was much encroached upon by fallen detritus in fact so much as to afford no spot where he could approach the back wall without stooping. (See fig. 38.)

As regards the foreward part of the shelter, conditions were equally unfavorable in this respect in so far as the big chunks of débris, covering most of its floor, extended so closely to the limits of the overhang or line of shelter as to leave but a narrow strip, scarcely a foot wide, where he could stand upright, with the roof overhead. Such being the case, may we not presume that sometimes at least he contrived to enlarge the sheltered area by placing poles against the face of the cliff and covering them with bark and the skins of animals. The other parts of this 100-foot shelter were so low as to compel its ancient occupants to crouch or lie down, if at all inclined to use them. The smooth tops of these rocks, four feet below the ceiling, provided, indeed, good resting-places and in the fine sand, there accumulated, were found, significantly enough, quite a few potsherds and bones.

We must not omit to mention that this station fronts east by south, overlooking Otter Brook valley. Speculating as to the source of the Redman's drinking water, he could, of course, always procure it by going down to the brookside, at the bottom of the slope, seven hundred feet away, a distance too great to suit him. A close search of the neighborhood, however, showed traces, half way down the hillside, of what may once have been a perpetual spring, but which today flows only during very wet weather.

EXPLORATION

Before any digging was set afoot, the shelter was carefully examined for traces of fire and other surface indications. Faint smoke marks could be discerned near the edge of the ceiling both within and without, but there was none on the rear wall. Eventually, it was noticed that these marks corresponded with the position of the firepits, six of which occurred along the foreground, beneath and a few feet beyond the outermost rim of the impending roof. No tell-tale refuse lay on the floor

within the overhang. Its surface was level excepting a few protruding boulders, and it was composed of fine sand on top changing into gravels in the lower layers.

A large hole was dug in the center part of the covert between the rear wall and the fireplace, marked "c" on the ground plan. At three inches below the top the dirt assumed a darker color and there came to view bones and potsherds as indubitable tokens of the Indian's one-time presence. Subsequently, the deposit of darkish soil was found to be more than a foot in thickness and to be superimposed upon a bed of gravel that did not contain any remains. Buried in this lower deposit were additional bones and sherds together with flakes of cherty material. Near the rear wall, at a six-inch level, it yielded a triangular arrow point of chert, about an inch long.

FIREPLACE B

The large niche, three feet long by two feet wide, in the rock to the left of this section, was a natural fireplace and investigation demonstrated that it had been employed as such. Underneath a deposit of rubble, several inches in thickness, black dirt was encountered containing considerable camp refuse, diffused pell-mell to a 15-inch level, where it was underlain by a stratum of coarse gravel, apparently devoid of traces.

Most abundant were the bones, several hundred in number, assignable, most of them, to deer. Fresh water mussels, badly crushed, occurred in small heaps at an 8-inch level and below. Then there was a bone tube, resembling a pipe stem, about an inch long; a thin, rectangular bone plate, one and a half inches long by two-thirds of an inch wide, made from the carapace of a turtle; a triangular flint point and a small quantity of chert chips.

Associated with these were many pottery fragments of a reddish or dark brown color, some of them exhibiting fabric-markings, others again incised lines or rows of dots, indicative of Algonkin art. One of the sherds, a rim piece, revealing a portion of a square collar with indented peak, showed a rude representation of a human face across the angle of the collar, eyes and mouth indicated by horizontal slits and decorated with rows of oblique lines near the neck. That this latter sherd was distinctly Iroquois, must at once be patent.

FIREPLACE A

It may seem strange that this, the largest of the seven hearths, was the last to be discovered, having been an afterthought, so to speak. The

explanation is that the spot where it lay did not in the least suggest a fireplace in that it was completely masked by heaps of big stones that were here piled up against a chunk of rock close to the line of shelter, the same chunk as that said to be the left of the section just discussed. (See ground plan.) Observing, however, that this spot was in line with all the other pits on the narrow strip of foreground below the overhanging roof and a little beyond its limits, it was deemed advisable to investigate it also. This necessitated the removal of all the rocks heaped up there, the heaviest weighing up to two hundred pounds and withal tightly wedged in. Having done so with the aid of a crowbar, black dirt was revealed underneath, the surface of which was littered with innumerable bones and pieces of earthenware. It was found to be a heavy deposit, about twenty inches deep, at which level there was another heap of stones, forming as it were a hard floor for the overlying bed of culture débris. No attempt was made to remove the latter as the black dirt at this depth was seen to peter out, being gradually replaced by gravel. (See fig. 39.)

Scattered throughout this deposit, as just intimated, were thousands of bones, predominantly cervine, some of them charred and all of them broken, presumably for the extraction of the marrow. Jaw bones of full grown deer with teeth attached were quite plentiful; muskrat teeth and pieces of the carapace of turtles were also noted. Besides, there were chips of chert, flint, quartz and a few of argillite, along with three perfect triangular arrow points of flint, less than an inch long, and four fragments of points.

At least five hundred pieces of pottery were dug up, a considerable percentage of which were of reddish clay, while others were light brown, with bits of quartz baked in for tempering. Seven of the larger sherds were indubitably of Iroquoian type, displaying the constricted neck, decorated with parallel lines, oblique and horizontal, and also with rows of fine dots or pits. One of the sherds of Iroquois type exhibited a rather intricate pattern of oblique lines and dots, alternating with horizontal lines and displaying besides a series of pits near where the collar joins the neck.

The most remarkable fragment, however, was a rim sherd sufficiently large to show the broad, square collar and exhibiting a human face with eyes and mouth suggested by horizontal slits. The face lay across the angle of the collar and the apex or peak of the rim was deeply notched. As it will be recalled that this description accords precisely with that of the effigy piece unearthed at fireplace b, the conclusion is inevitable that the two sherds were parts of the same jar, though found five feet

apart at opposite sides of the big chunk of rock, previously referred to. A careful examination of all the above fragments seemed to disclose that they had been derived from at least five pots.

More than half of the sherds discovered at this pit were of Algonkin type and they represent about eight jars. Of their number was a beautiful recurved rim piece, of reddish clay, ornamented with short oblique lines below the rim. A few others evinced the familiar finger-nail pattern.

Speaking of the size of this pit, it was found to be approximately eight feet long by four feet wide and nearly two feet deep. The remains, were, it seemed, evenly distributed throughout all levels. Further, they were evidently of the same culture horizon or attributable to what is called Middle Algonkin. Respecting their deposition in such an abundance, it cannot be accounted for except on the assumption that this fireplace had been in frequent use and, maybe, for a long period.

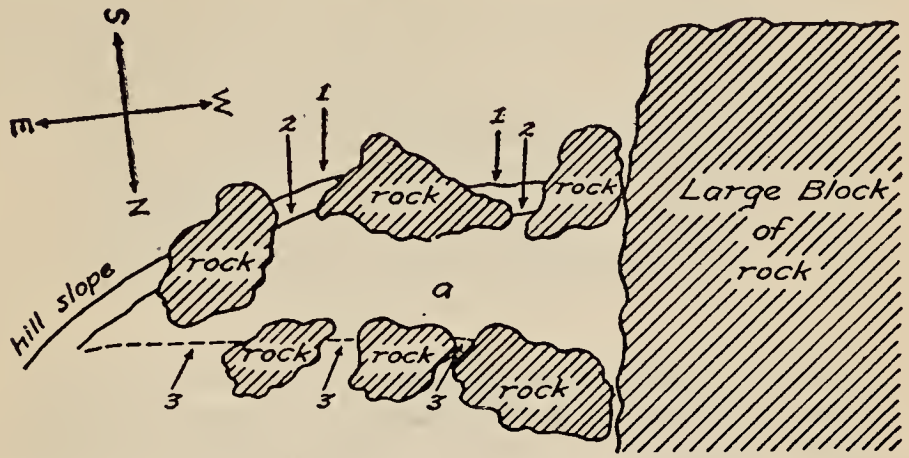
Again, there is ground for believing that it had never been a single large fireplace of the aforesaid proportions but rather a group of smaller ones, built within this spot, now here, now there, at different times and by different people, but which now, by blending the one into the other, create the impression of one big pit. In short, it kept on expanding and it is perhaps thus that we can most readily account for its unusual size.

There is yet another problem, to wit, that of the heavy rocks piled up over the entire fireplace. As they could not have dropped off the roof, for the latter is solid and reveals no traces of recent breaks or scars, there remains no other alternative but the supposition that they had been put there by human beings, i. e., either by the Indians themselves or by white men. Yet the fact that they were deeply anchored in the ground and partially covered with forest débris tends to show that they must have lain there a long while.

FIREPIT C

A few paces to the right of this pit is another but much smaller fireplace, designated as "c" on the diagrammatic section. Beneath some three inches of sand and stones that had accumulated over it since the days of the Redman, there was a deposit of blackish dirt and stones, about three feet square by fifteen inches deep, wherein were embedded one perfect triangular flint arrow point, an inch long; two fragments of triangular points, also of flint; chips of chert and dozens of bones. Pottery fragments were scarce, only about a score of them, showing Iroquois or Algonkin types of ornamentation. (See fig. 40.)

Otter Brook Shelter, Upper One, Lackawaxen, Pike County, Pa.



Transverse section of trench through firepit a. Width about 4 feet. Depth 20 inches.

1-1. Modern surface.
2-2 Top of Indian layer.
3-3. Bottom of Indian layer.

FIG. 39

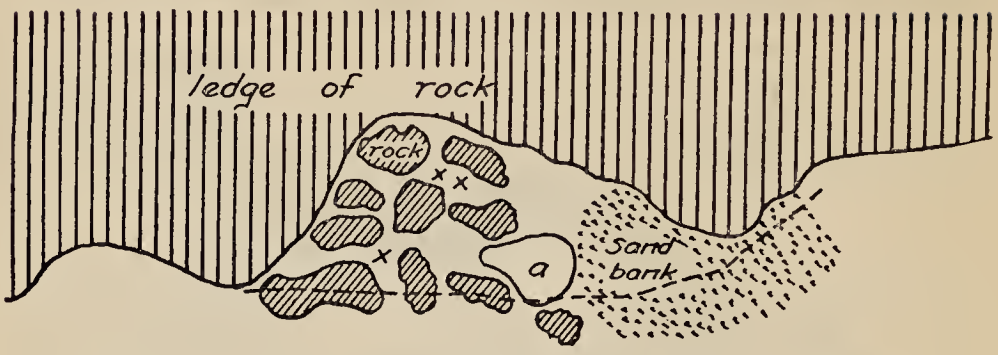
Otter Brook shelter, Upper One, Lackawaxen, Pike County, Pa.

Diagrammatic section of trench along front of shelter. Showing firepits a, c, d, e.
Length of trench about 45 feet.
Maximum depth 26 inches.

1. Modern surface.
2. Indian level.
3. Lower limit of Indian culture layer.

FIG. 40

Lackawaxen-Shohola Rock Shelter



Ground plan of rock shelter on south shore of Delaware River, 2 miles east of Lackawaxen, Pike County, Pa. It is 15 feet long by 10 feet deep and faces north. a. marks site of hearth; xxx site of scattered remains.

Scale of feet.
0 10 feet.

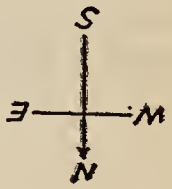
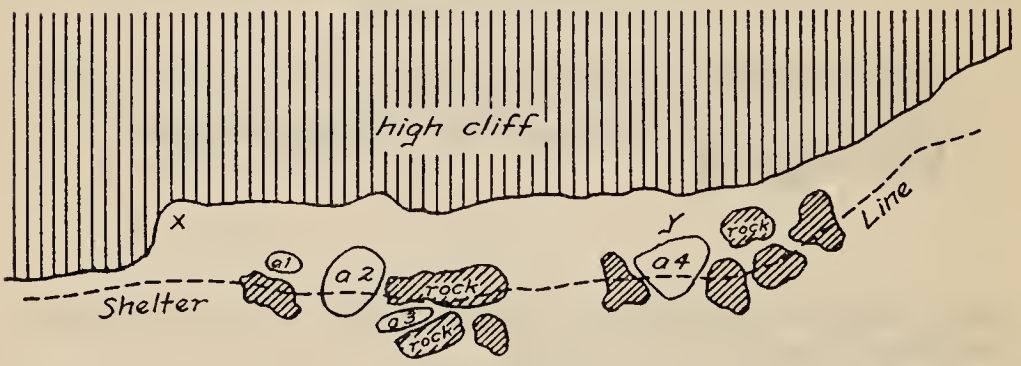


FIG. 41

Shohola Shelter



Ground plan of rock shelter at Shohola, Pike County, Pa. Sheltered space 80 feet long; overhang 12 feet; roof 30 feet above floor. Eastward exposure. a.a.a.a. Firepits. x. site of large rimsherd. y. site of modern crockery.

Scale of feet.
0 10 feet.

FIG. 42

FIREPIT D

Still farther to the right, alongside of a big block of rock, there were unmistakable signs of two more fireplaces, about five feet apart, overlain by a 3-inch layer of gravelly soil and extending like the former a foot or two beyond the overhanging roof. (Vide d and e on the diagrammatic section.) Though approximately of the same extent and depth as pit c, the layer of blackish dirt and rocks within them was much richer in refuse.

In pit d the following objects were met with: A perfect triangular flint arrow point, five inches below the ground; two crude triangular points, each about two inches long, of chert and slate; a small flint nodule; a couple of flakes; a few bones together with a piece of a carapace; scores of potsherds, partly Algonkin, partly Iroquois. Those of Algonkin style were mostly plain; a few were cord-marked or disclosing incised lines and the herringbone design, assignable to about seven pots. Among those of Iroquois pattern were seven rim pieces, that is, fragments of the angular collar with adjoining constricted neck, displaying the chevron design and rows of crescents, probably derived from five jars.

FIREPIT E

From this pit were dug up a perfect triangular flint arrow point, an inch long; chips of chert and flint; a netsinker; a quantity of deer bones, some of them burned; over fifty sherds, for the most part plain. About ten were cord-marked, one exhibited parallel lines, one a series of pitted lines, another finger-nail impressions. They varied in thickness and color, the latter ranging from light brown to dark brown, along with a few reddish ones and all of them belonging to about eight vessels. The culture refuse was diffused through a 15-inch deposit of dirt, enclosing many rocks, some of them betraying the action of fire.

FIREPITS F AND G

The extreme right-hand section of the covert, though structurally superior to the others, proved to be comparatively poor in débris. Why this should have been so, is something of an enigma, seeing that its floor was unobstructed by large rocks, thus permitting the savage to utilize all of its space, twelve feet long by eight feet deep, without forcing him to stoop, except close to the rear wall. Yet in this compartment there were identified two shallow fireplaces, well within the overhanging roof and marked f and g on the ground plan.

Excavation of pit f revealed three square netsinkers, a few chert

chips, a small heap of unio shells, several big bones and a couple of plain sherds.

In pit g there were encountered four square netsinkers, flakes of chert, some large bones and a few plain sherds. Between these pits and the back wall, an inch or two below the gravelly surface, the trowel brought to light additional refuse in the shape of chips and bones, though nothing was forthcoming in the lower levels.

It remains to be said that the sand covering the upper surface of the big flat rocks, opposite pits a, d and e, in the left-hand portion, yielded a score or so of plain pottery fragments as well as some deer bones, yet there was no evidence of fires having been kindled upon these rocks.

LIST OF OBJECTS

In the following is given a summary of the finds here made:

Eight perfect triangular arrow points, of flint or chert, each about an inch long.

Two crude triangular points, of slate or chert, each two inches long.

Six fragments of points, mostly of flint.

About two hundred flakes, mostly of chert, the others of flint.

Yellow jasper, red slate and argillite.

Eight netsinkers, seven of them square, the other one round.

Thousands of bones, including those of deer, rabbit, muskrat, turtle and birds and possibly those of elk and bear.

Scores of unio shells, all of them broken.

More than a thousand potsherds, belonging to about forty vessels, about two-fifths of these indicative of Iroquois art.

RESUME

The evidence afforded by a systematic exploration of this station admits of a few conclusions anent the character and activities of its erstwhile occupants. In the first place, the profusion of bones and potsherds left buried in its subsoil furnishes eloquent testimony in favor of oft-repeated visits during what may have been a prolonged period of time. The former hint at frequent repasts and recall to us the spectacle of the red huntsman returning from the chase.

Assuredly, his earliest visits occurred far back in the past and were continued through the centuries until, and probably not later than, the European's first appearance in these parts. In fact, the total absence under this rock of any trade articles of the white man's manufacture would seem to be a sufficient warranty for declaring that those who haunted it had not yet come into touch with him and that, indeed, they

had ceased to use it as a camp by the time he invaded this region, viz., about the middle of the eighteenth century.

While therefore, by reason of the enormous quantity of bones, this spot was a hunters' rendezvous, it was also the temporary home of many a squaw, wandering hither in company with her spouse, and that repeatedly, if we may judge by the large number of pottery fragments that had here met with an accident. How many additional jars may have been carried to this rock, jars of which there are no vestiges, having been taken away intact, can only be surmised.

A fascinating problem, well worthy of being discussed, is that which pertains to the ancient dwellers themselves, i. e., the question as to who they were and whence they came. Though all such speculations are admittedly guess work, since nothing positive is known, yet the present author, for one thing, is inclined to believe that many of those resorting there hailed from some of the camps on Delaware River, near Lackawaxen. At any rate, the finding of unio shells and netsinkers under this shelter is significant in that it tends to connect them with the river, a mile away. It implies indeed quite definitely that they went thither in quest of these bivalves and also for the sake of catching fish. Accordingly, trips to and fro between rock and river may be taken for granted.

Nor is the assumption untenable that many of the braves, hunting through these hills and seeking rest under this rock, came up from the Indian towns along Delaware River, below Port Jervis, or from still more distant regions like New Jersey. We may, further, conceive of whole families, sojourning here en route to other localities. Referring to their tribal affiliations, we may legitimately suppose that all of them were members of the Munsee division of the Lenâpé and this notwithstanding the fact that much of their handiwork was highly suggestive of Iroquois industry.

Considering the small quantity of flakes, it goes to demonstrate that little chipping was done here. Since finished stone implements, that is, arrow points, were equally scarce, this would seem to bespeak the reverse of frequent occupation but for the fact that an analogous condition in this respect was observed at all the stations along or near Delaware River, where, it will be recalled, pottery remains and bones were greatly in excess of artifacts made out of stone, in contradistinction to most of the rock shelters of Ramapo and Shawangunk mountains, at which, as a rule, such artifacts were found to be commensurate with débris of the other kinds, as set forth elsewhere in this report.

Of considerable significance was the circumstance that all of the

arrow points dug up under this covert, were of triangular shape, i. e., of a type common among the Six Nations. As, moreover, a high percentage of the potsherds was likewise of Iroquoian type, we have here convincing proof that the frequenters of this place had, to a large extent, been influenced by that culture.

That there was, for topographic reasons alone, a prehistoric pathway up Otter Brook, along or near the banks of the stream, leading to the uplands of Pike County with its numerous woodland ponds or tarns, can hardly be doubted. Aside from that, the very existence in this vale of a rock resort of such incontestable moment, beknown, assuredly, to all the hunters for fifty miles round about, would in itself imply, nay, demand the whilom occurrence of a much beaten track. At the same time, it is certain that such a trail did not pass close by the shelter, situated, as it was, high upon the hillside, about 700 feet from the brook, and in a terrain most arduous for travel.

THE LACKAWAXEN-SHOHOLA SHELTER

A small rockhouse affording evidence of Indian occupation was discovered on the banks of Delaware River, halfway between Lackawaxen and Shohola. For want of a better name it is herewith designated as the Lackawaxen-Shohola shelter. In places along here the river is hemmed in by steep ledgy slopes, atop of which is the roadbed of the Erie railroad. Twenty feet below the tracks and about thirty feet above the river rises a perpendicular rock outcrop, overlooking the Delaware to the north, the bottom of which has worn away in such a wise as to result in a good-sized cavity, fifteen feet long by ten feet deep, with a roof seven feet above the floor in front but only three feet high in the rear.

All of its left-hand section was encumbered with flat stones or slabs that had evidently dropped off the roof and its extreme right-hand section was encroached upon by a mass of loose gravel and rocks that had washed in from above, thus leaving only a small area in between comparatively unobstructed. Yet as even this area proved too rocky to permit of a regular trench being dug, test holes had to be resorted to.

In the course of this work and while removing part of the sand bank, unmistakable signs of an aboriginal fireplace were noted two inches below the surface. (See fig. 41.) Embedded in the fire-stained area of gravel and rock, measuring two feet square by six inches deep and extending into the sand bank, were a small quantity of fresh water mussels and bones along with three rim sherds of Iroquoian type, evidently derived from three jars.

One of the sherds showed a flat lip, encircled beneath by a row of indents, both on the outside and within, resting upon a series of horizontal fillets. No part of the neck was in evidence and the clay was fairly well triturated with tiny bits of quartz.

The second sherd was adorned with slanting incised lines, running parallel, and margined just above the neck by an encircling row of deep pits. The clay was of fine texture.

The third piece, without neck portion, displayed a row of stamped angular pits, overlying three encircling horizontal lines, with vertical incisions underneath. Here, too, the clay was finely levigated.

Digging in the dirt and under the slabs that filled the left-hand section, additional camp litter was unearthed in the shape of bones and fresh water mussels. (See x x on diagram.) In view of the peculiar position of this refuse, lying partly underneath the slabs, one is tempted to hazard the conjecture that most of these rocks had become detached from the roof since aboriginal times, loosened by the concussions that were occasioned by dynamite blasts, set off when the railroad was building. If this be so, other relics may be expected to lie under these stones.

As not a single stone implement or chip, suggestive of male visitors, was found and as all the refuse here extant was ascribable to females, we may presume that this place was resorted to by women only and hence a squaw shelter, so called. It was ideally situated and easily reached by dugout canoe from across the river, in New York State, where, on the broad flats between Dark and Beaver brooks, there was a large Indian encampment, from which thousands of artifacts of many types have been obtained in the past.

As regards the Pennsylvania shore of the river within this vicinity, it seems to have been quite impassable by reason of the mountain slopes rising precipitously almost from the water's edge so that, if trail there was, it must have hugged the river. In this connection, it should be remarked, however, that, for aught we know, the Delaware today is a shallower and wider stream than it used to be, owing to the gradual silting up of its bed through the accumulation of sediments. As a consequence, it is constantly encroaching upon its banks so that what was once dry land is now under water. Hence, Indian trails may have existed where none could be at present. And this applies to many a section along its shore line, where present conditions, so different from those of only a century ago, preclude the possibility of a continuous path except at times when the river is very low. The latter-day physical aspects being so misleading, we may readily con-

ceive of a prehistoric thoroughfare proceeding along both its banks without a break. It is probable, therefore, that our rock shelter was accessible not only by boat but also by a trail.

THE SHOHOLA SHELTER

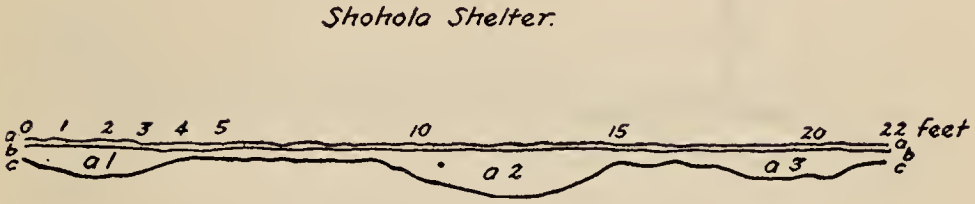
Half a mile south of Delaware River, at Shohola, and less than half a mile westward from Shohola Creek, there looms a perpendicular rock escarpment, trending north and south and surmounting the wooded slope, which intervenes between it and the Shohola-Greeley road, some 300 meters to the east. It fronts eastward and, being some sixty feet high, it is the loftiest cliff for miles around. Some thirty feet above its bottom it deviates from the vertical by jutting out horizontally for about twelve feet. With a roof so elevated, the shelter was a poor one, affording little protection from rain. However, its level, gravelly floor was unobstructed by rocks except along the front, where they were, however, quite out of the way. (See fig. 42.) Moreover, there was a perpetual spring a short distance down the slope and the ancient path along Shohola Creek was sufficiently near to make this place easy of approach.

THE EXCAVATIONS

The shelter was eighty feet long. Its rear wall showed no traces of the action of fire, as the fireplaces lay near the line of shelter, a fact subsequently to be discovered. Bones and chips, littering the floor, plainly indicated the character of the place. The top soil along the rear wall was yellow gravel, apparently undisturbed, while that farther out was of a dark color such as denotes a fireplace. Through it several trenches were dug. The first of these, over to the left, was twenty-two feet long and ended amid a pile of rocks, opposite the center of the covert. (See fig. 43.)

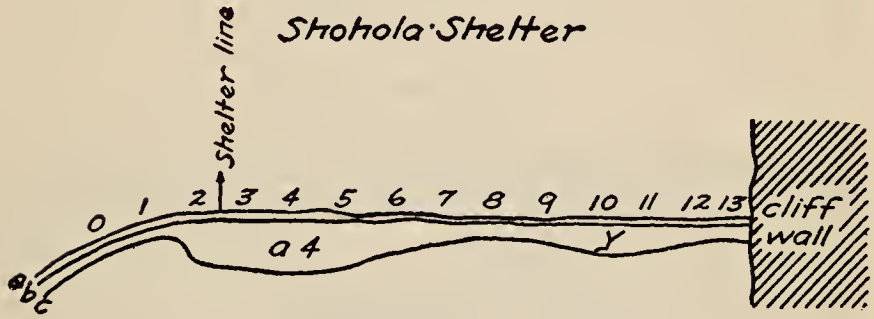
The excavation along here disclosed three well defined firepits, separated the one from the other by shallower deposits of culture débris and embedded in soil which was somewhat less discolored. The pit farthest to the left and close to a boulder, marked a1 on the ground plan, appeared to be four feet long by three feet wide and ten inches in depth. Distributed confusedly through the dirt were scores of split animal bones, including bird bones, probably wild turkey, some fresh water mussels, six textile-impressed sherds and a netsinker, made out of a flat, square pebble and notched, as usual, at the opposite ends of the smaller diameter.

Some three or four feet farther to the right there was another and much larger pit, marked a2 on ground plan, six feet long by eight feet



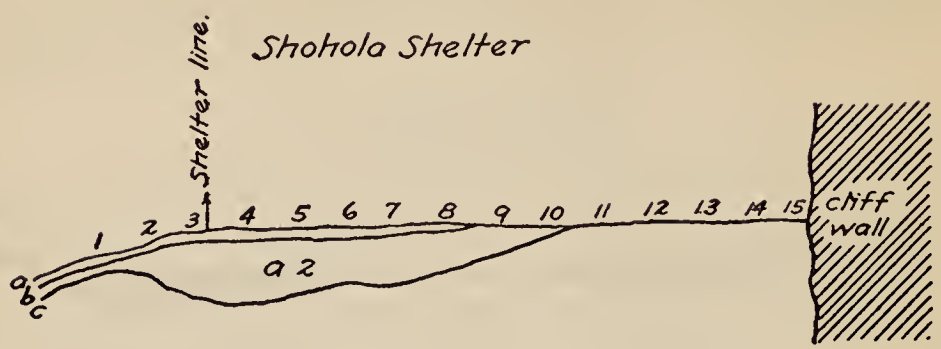
Cross section of 22-foot trench through fireplaces a1; a2; a3 in front of shelter.
a-a. Modern surface; b-b. Indian level.
c-c. Lower limit of culture debris.
Drawn true to scale.

FIG. 43



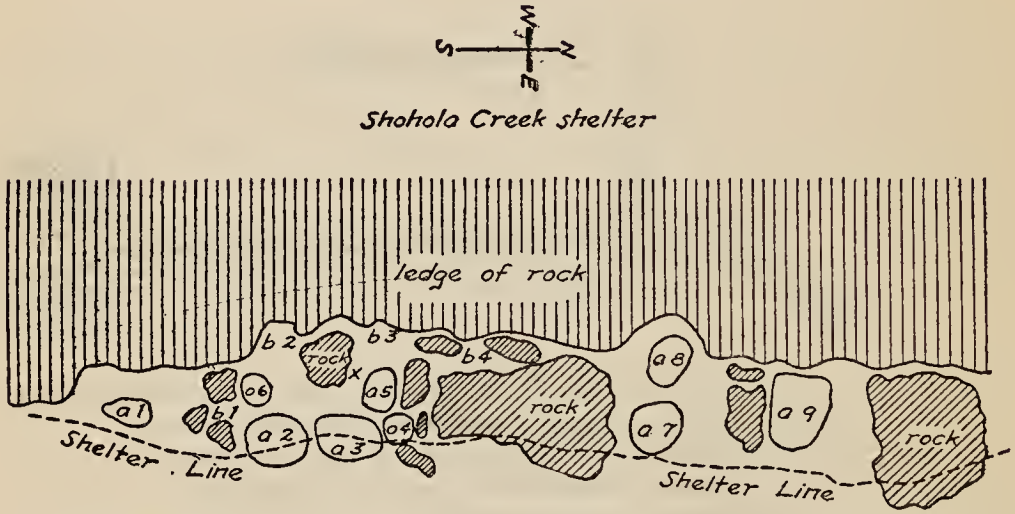
Transverse section of 13 foot trench, through fireplace a4 and modern remains at y.
a. Modern surface; b. Culture level.
c. Lower limit of culture deposit.
Drawn true to scale.

FIG. 44



Transverse section of 15-foot trench through fireplace a 2.
a. Modern surface, b. Indian level.
c. Lower limit of culture debris
Drawn true to scale.

FIG. 45



Ground plan of rockshelter on Shohola Falls road 2 miles north of Shohola Falls, Pike County, Pa. Length of shelter 85 feet. Average overhang 12 feet; roof from 5 to 10 feet above floor. It faces east. a.a.a. fire or feast pits. $b^1 b^2 b^3 b^4$. bone pits. x. site of old pottery.
Scale of feet.
0 ═══ 10 feet

FIG. 46

wide with an extreme depth of sixteen inches, attained farthest out. It contained hundreds of bones, finely tempered plain sherds, several rimsherds, ornamented with incised parallel lines. The lower portion of a stemmed spearhead, of slate, and part of a pestle, square in cross section.

The next fireplace, a3 on the ground plan, occurred still farther to the right and quite outside the overhang. It measured approximately five feet long by three feet wide and was only seven inches deep, superposed as it was upon a rock floor. It was partially enclosed by big blocks of rock, forming a natural hearth, and the stains caused by the fire could be plainly noticed on their sides, both above the ground and for some inches below. Its culture contents consisted of hundreds of bones, plain pieces of pottery, a few decorated rimsherds, one of them highly ornate, a hammerstone, pitted above and below, a celt with a badly battered cutting edge, a little over four inches long by one and a half inches wide, fashioned out of a close-grained black sandstone, and a netsinker made out of a water-worn flat pebble.

The area between these pits and the cliff wall was carefully trenched over, but it proved quite barren of remains, since nothing came to light save numerous bones, chiefly of deer, and several fragments of pottery, lying partly near the surface. The culture-bearing strata, discussed thus far, were overlain by a thin top layer, containing few relics. Toward the interior they rapidly thinned out, becoming more and more superficial and yielding fewer and fewer remains. Not only that but the area nearest the rear wall had the appearance of being original or wholly unchanged, as though it had never in any way been affected by the Redman's activities under this rock. (See a2 on cross section.) (See fig. 45.)

Another fireplace, a4 on the ground plan, lay far over to the right and partly beyond the overhang. It was larger than any of the others, measuring eight feet long by seven feet wide and fourteen inches deep. Embedded in the fire-stained dirt were large quantities of bones, a perfect triangular flint arrow point, less than an inch long, a broken point, also triangular, chips of flint, chert, jasper and slate, and some small sherds, plain and fine-textured. In common with fireplace a2, the deposits reached their extreme depth farthest out, viz., several feet beyond the shelter line. (See fig. 44.)

A small area of blackened soil, eight inches thick and overlain by a 4-inch sterile layer was encountered between it and the cliff wall. It yielded scores of bones, unio shells and a decorated rimsherd, closely

intermingled with fragments of white man's crockery of old-fashioned style. (See y on cross section.) None of the latter lay less than four inches below the surface and there was nothing to show that the ground had ever been disturbed since the Redman's exodus from these parts.

A large rimsherd of reddish clay, displaying an angular frieze and part of the neck, lay superficially buried in the extreme left-hand portion of the shelter near the rear wall. (See x on ground plan.)

DISCUSSION OF THE POTTERY

There were nine decorated collar pieces, all bearing different designs and therefore assignable to nine vessels. One of these, just mentioned, of reddish clay, showed a raised angular frieze and part of the incurved neck. The frieze was three-quarters of an inch wide and was adorned with an encircling series of four incised lines, margined near lip and neck by short slanting incisions. Although the clay was coarsely tempered, as seems to have been the case with most pottery of Algonkin manufacture, its form and ornamentation alike were denotative of the Iroquoian type of earthenware.

The second sherd, of a brownish color, was highly ornate, displaying a raised collar, one and a half inches broad, and portion of the constricted neck. Below the plain lip there was a row of short vertical indentations, overlying three incised parallel lines, while a pattern of zigzag lines, filled in with horizontal and oblique lines, extending across the whole width of the collar, and margined near the neck by a band of vertical notches. Number three exhibited a series of oblique parallel lines, bordered by a row of deep pits just above the constricted neck. Number four was similarly marked except that there were two series of oblique lines at different inclinations. Number five showed only the base of a raised collar with a small fraction of the neck and was decorated with incised pyramids, margined near the neck by a row of pits.

The four remaining sherds showed no part of the neck. Three of them exhibited a small portion of a plain lip and all of them were embellished with an encircling series of incised fillets, alternating with oblique and vertical lines. The texture of the clay, being somewhat coarse, hinted at Algonkin origin. The first five fragments described above, were essentially Iroquois, while the last four seemed to typify a technique common to both the Iroquois and the Algonkin.

Apropos of the six cord-marked pieces, exhumed from pit a1, they varied sufficiently to make it clear that they had been derived from

four different jars. The plain sherds, twenty-eight in all, were of fine texture and exhibited the smooth finish peculiar to Iroquoian ceramic ware. Though some of them may match the decorated sherds, they represented, it seemed, no less than four additional pots.

To sum up, there were at this shelter the remains of seventeen pots, nine of which are referable to the Iroquoian type, in part, perhaps, to an intermediate type; another four, being textile-impressed, are apparently of Algonkin origin, while the plain sherds, representing, say, four pots, may, for the reasons stated in the foregoing, be likewise assignable to Iroquois industry. As, then, the proportion of pottery remains of Iroquois make to that of Algonkin manufacture was approximately as three to one, the Shohola shelter agrees closely in this respect with the Prospect Rock station, since there also the ratio between the two styles was about three to one.

SYNOPSIS

The evidence adduced in the foregoing may warrant a few general conclusions. Most significant is the fact that the remains and their vertical distribution throughout the débris evinced but a single horizon of culture, albeit one not a little modified through contact with the Iroquois, as demonstrated most strikingly in the matter of earthenware. Further, it is worthy of note that not a few bones dug out from under rocks at the lowest levels were partly petrified, looking much older than those from nearer the surface. Yet, whatever their difference in age may be, it is quite impossible to say. At any rate, from data such as these no trustworthy deductions can be made as to the relative antiquity of this shelter, least of all as regards the possible occurrence of another horizon of culture, antecedent to the one here discussed.

Another observation made was that the culture débris was covered by a very thin layer of soil, it being thickest—an inch or so—over the pits, in the forward part of the covert, whence it rapidly faded out toward the inside, where aboriginal litter was lying on the surface, openly exposed to view. Though a condition of this sort may, at first blush, be supposed to argue for a comparatively recent occupation, the better explanation would seem to be that the factors normally favoring the accumulation of dirt through rock decay plus vegetable matter, were here quite inoperative. For one thing, there was no sloping bank near by, so situated as to permit of earth being washed down under the rock.

Since, then, the relative thickness of the top stratum, usually form-

ing over rock shelter deposits, does not furnish, dependent as it is upon local conditions, a clue of unvarying reliability anent the time element, i. e., the period which has elapsed since the Redman's final leave, this shelter, notwithstanding the above-mentioned state of affairs, may well have synchronized with and been abandoned as far back in time as the Prospect Rock station, where, it will be recalled, the layer of sterile dirt, overlying the débris, was fully five inches thick.

As pottery remains were not nearly so abundant as at the Prospect Rock station, we may conclude that this covert did not see so many female visitors. In common with that station, none of the decorated sherds occurred in duplicates. The superfluity of animal bones here noted brings to mind the primitive hunter repairing hither repeatedly to feast on the spoils of the chase. These bones were mostly cervine, as is invariably the case at all rock shelters that contain any bones. Very few arrow points were made under this rock, as proven by the scarcity of chips. Lastly, the finding of pieces of porcelain of an antiquated style in close association with primitive camp litter seems to betoken contact with the early pioneers, unless, in fact, these objects are intrusive. This, however, does not appear likely, buried as they were in apparently undisturbed soil, four inches or so beneath the surface.

THE SHOHOLA CREEK STATION

This rock haunt is situated two miles north of Shohola Falls, at a point a few hundred meters west of Shohola Creek and about eight hundred meters southwest of its junction with Greeley Creek. Lackawaxen lies almost exactly four and a half miles due north in a bee line, while Shohola is five miles to the northeast in a straight line, but more than seven miles by highway. The dirt road, connecting Shohola Falls with the Greeley-Shohola turnpike, passes east of the shelter, with a narrow strip of woodland intervening and partially screening it from sight.

Here the mountain terminates abruptly in a long line of cliffs and broken ledges, trending north and south parallel to the creek and dominating the level meadowlands along its westerly bank. Although there are numerous other caves at the foot of these rock formations, this shelter was the only one affording evidence of quondam Indian occupation. The reasons for this are not far to seek, for not only was it of larger size and superior configuration, but there was a double supply of good drinking water in its immediate neighborhood, furnished by a streamlet and a spring.

ITS STRUCTURE DESCRIBED

The shelter is at the foot of a ledge and, as usual, it owes its existence to the erosive force of atmospheric agencies which are ever busy breaking up the less resistant portion of a rock. The effect of this process of weathering was a large cavity, penetrating some twelve feet into the cliff for a length of more than eighty feet. The upper section of the cliff, thus hollowed out, is about ten feet above the floor in front but only five feet and less along the rear wall.

It is really a triple shelter of most irregular shape, its three compartments differing greatly in size, general shape and character of floor, its left section is the smallest, being only fifteen feet long by six feet deep. The middle section, about twenty feet long by twelve feet deep, is flanked on the left by a pile of rocks, dividing it from the former, and on the right by a huge mass of rock, twenty feet long by ten feet wide, which hopelessly obstructs all of the center portion of the shelter, making it unsuitable for use. Beyond this block is the third section, twenty-five feet long by twelve feet deep, separated into two parts by large rocks in its center. At the extreme right is a bulky mass or rock, extending from the cliff wall to beyond the line of shelter, thus protecting it laterally. (See fig. 46.)

THE EXCAVATIONS — LEFT SECTION

Faint smoke marks were discernible on the solid outside face of the cliff above the lower edge of the roof, but there were no such traces on the inside surface because of constant rock decay. The floor of the shelter, composed of black dirt and stones, disclosed no memorials of the Redman apart from animal bones, scattered here and there. It was soon noted, however, that much of the refuse was lying close to the surface.

The left section, though carefully trenched over, yielded few telltale signs. A fireplace (a1 on the ground plan) occupied most of its forward portion. It was a shallow pit, about ten inches deep, superimposed by a 2-inch layer of humus and resting upon rock bottom. Embedded in its fire-stained subsoil were several split bones, evidently of deer, a couple of chert chips and a few textile-impressed sherds of crude texture and rough finish. That this part of the covert had been rarely used may be inferred from the meagerness of its culture contents.

THE MIDDLE SECTION

No fewer than five hearths and four bonepits, yielding a profusion of prehistoric camp litter of various types, could be identified in this

section, which covered some 200 square feet of ground, most of it well roofed over. An 18-foot trench dug along its front, gave unmistakable indications of at least three fireplaces (a2, a3, a4 on the ground plan). One of these, a2, measured approximately six feet long by four feet wide and twelve inches or so deep. The superincumbent layer of black dirt, containing some bones, was two inches thick, but thinned out toward the interior, where, as stated above, bones were lying on the surface. The deposits, spreading outwardly, reached their maximum depth a foot or so beyond the overhang. (See fig. 49.) The fact that fireplaces are often found partly outside the overhang, may denote that the savages not infrequently enlarged the sheltered area by placing poles obliquely against the face of the cliff and covering them with matting and skins. Aside from hundreds of bones, this pit yielded not a few pieces of pottery, plain and ornamented, a triangular arrow point and a pitted hammerstone.

Pit a3 farther to the right (see plan) was of about the same dimensions and here, too, the débris increased in thickness toward the outside, though not quite so deep as in the former. The refuse, with which it was filled, consisted, as before, of quantities of bones, associated with plain and decorated sherds.

A very deep though comparatively small pit (a4 on plan), partially surrounded by rocks, too large to be removed, occupied the remaining space in front. The deposits, exceeding two feet in depth, yielded a miscellaneous assortment of aboriginal objects, distributed chaotically through the medley of black dirt and stones. In addition to numberless bones there were dug up scores of potsherds, among them elaborately embellished collar pieces of Iroquois type, a worked antler prong, a tally bone of deer horn, a notched flint point, a fragmentary stemmed point, a scraper, the base of a large flint blade and dozens of chips. Not all of the pit could be explored owing to a large tree close by, the roots of which spread out in all directions, firmly clasping the big stones round about.

Adjoining this pit alongside a large rock was another hearth (a5 on diagrammatic section of shelter). It was about five feet long by four feet wide and fourteen inches deep. From it there were recovered abundant animal bones together with numerous pottery fragments, including decorated rimsherds of Iroquoian ware, a broken triangular point and some chips. It is worth noting that, again, as in the case of Prospect Rock station, the chips and the point lay superficially buried, about four inches beneath the surface.

The area occupying the center portion of this compartment was by

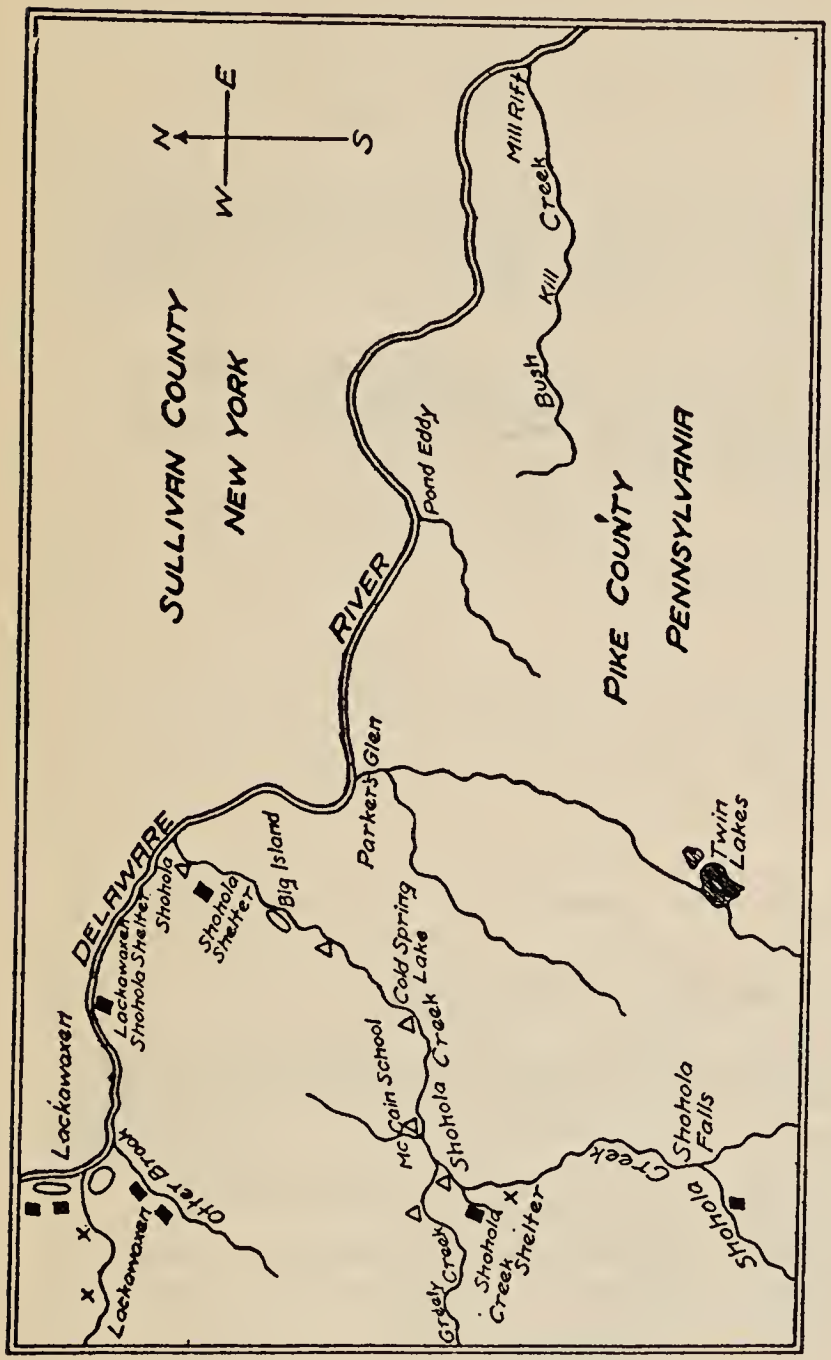
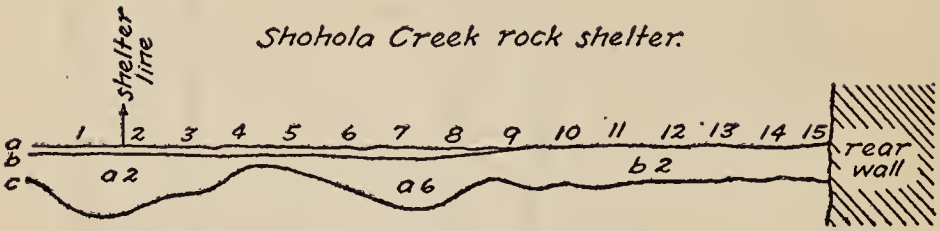


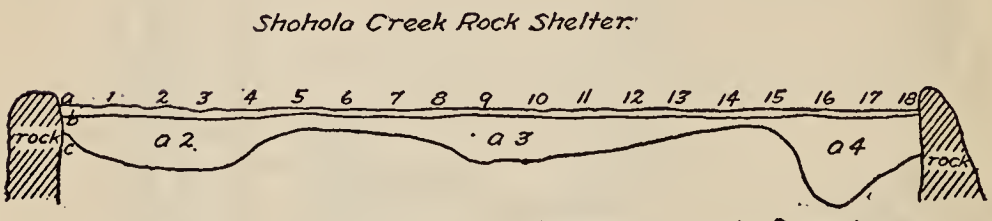
Chart showing exact site of Lackawaxen - Shohola Shelter. Shohola shelter and Shohola Creek shelter.
■ rock shelter. ○ village site. △ camp site. × scattered remains.
Scale. 5 miles to 3 inches.

FIG. 47



Cross section of 15 foot transverse trench through fireplaces a 2 and a 6 and bone deposit b 2.
a. Modern surface; b. Indian level; c. Lower limit of debris. Drawn true to scale.

FIG. 48



Cross section of 18 foot trench through firepits a 2, a 3, a 4 in front of shelter.
a. Modern surface. b. Top of Indian layer. c. Lower limit of culture debris.
Drawn true to scale.

FIG. 49

no means devoid of culture refuse. Thus, underneath a 15-inch pile of heavy slabs, that obstructed the interspace between a5 and a large boulder, there lay some eighty-odd paddle-marked sherds of very crude texture, averaging more than a quarter of an inch in thickness. They, therefore, differed not a little from the sherds so far noted and as they were buried under a great heap of stones that had evidently dropped off the roof a long time ago, one could not but think that they were considerably more ancient than the others, being probably referrible to an earlier occupation, that is, to an influx of people of cruder culture than that possessed by the aborigines of a more recent period. While many of these sherds were obviously duplicates, displaying identical cord-markings, examination revealed that they represented no less than ten jars.

The rest of the central area, back of pits a2 and a3, yielded in its upper stratum a quantity of chips and two triangular arrow points along with the inevitable bones and fragments of pottery. Its lower levels of black dirt, replete with the ordinary camp litter, terminated less than a foot below the surface, being bedded upon coarse yellow gravel.

The last of the five fireplaces (a6 on plan) lay way over to the left and back of pit a2. Together with the usual refuse of bones and sherds, occurring to a depth of fourteen inches, there was unearthed a quantity of fresh water mussels, all of them about seven inches below the surface.

THE BONEPITS

The four bonepits, now to be discussed, were filled almost exclusively with animal remains. Pit b1 (see plan) was a trough-shaped depression, some fifteen inches deep, amid a group of rocks. Pits b2 and b3 (see plan) occupied recesses or niches in the cliff wall, where the roof was only two feet or so above the floor. Barely covered with dirt or immediately below the surface, which was flush with the adjacent area farther out, countless bones and stones lay in a confused mass down to a depth of two feet. Though predominantly cervine, those of bear and other mammals were not lacking. Particularly plentiful were the jawbones of deer, there being scores of them. From among the bones, cramming pit b3, there were recovered two perfect bone awls, each between three and four inches long, probably made from the legbone of wild turkey, and the tip of a third awl, also of bird bone. Bonepit b4 (see plan) was found back of the huge mass of rock, already referred to. Here, all the interstices between the numerous boulders near the rear wall were choked with bones and in

view of their position there can be no question that they were flung this way by the savages while feasting at this place. (See figs. 48-51.)

THE RIGHT SECTION

Although this compartment was the largest of the three and withal well protected overhead, it appears to have been less attractive to aboriginal taste. There were, however, traces of no fewer than three fireplaces (a7, a8 and a9 on the ground plan). They yielded more than a thousand bones along with scores of sherds, plain and decorated. In fact, some of the more ornate pieces of Iroquois type were unearthed from pit a9.

THE POTTERY REMAINS

Of the 180-odd fragments of pottery, found at the Shohola Creek rock den, fifty-four were plain pieces, eighty were cord-marked and forty-six were rimsherds, decorated with incised lines and stamped markings. Most of the plain sherds were finely tempered and of smooth finish, so characteristic of Iroquois fictile art. Examination seemed to indicate that they were derived from at least sixteen jars, though some of them, doubtless, are matchable with the ornamented collar pieces. The net-impressed sherds appeared to belong to fifteen jars, judging from the composition of the clay paste, the varying thickness, color and style of corded impressions.

As relates to the forty-six frieze pieces, they apparently represented forty different vessels, there being four duplicates. Nine of them were lip-frieze pieces, showing no part of the collar. They were embellished with incised horizontal and oblique lines, rows of punctate dots and pits. Twelve others displayed the lower section of the frieze with a section of a gently incurved neck. Their decorative design consisted mostly of incised lines, horizontal and slanting, and of encircling rows of indents, margined in a few cases by thumb-nail impression just above the neck. The character of the ornamentation exhibited by the above fragments is suggestive of Iroquois influence. Quite probably, however, they exemplify an intermediate type or a technique common to both the Iroquois and the Algonkin.

The rest of the collar-neck pieces, fifteen in all, including three doubles, belonged, it seemed, to twelve different pots. In all of them the collar was well raised above the incurved neck and the clay was nicely levigated save for a few sherds which were tempered with bits of quartz and therefore somewhat coarse. Some of the fragments were decorated as follows:

A flat-lipped sherd, encircled above by a row of fine vertical notches, beneath which are three incised horizontal lines, resting upon incised pyramids or zigzags, margined by a band of deep indents just above the neck.

A flat-lipped sherd with an upward projection or peak, encircled by a row of short incisions, beneath which is a series of parallel lines, while the major portion of the frieze displays a band of slanting incisions, margined near the neck by deep pits.

A flat-lipped sherd, encircled by a row of fine notches, resting above three parallel lines and an encircling band of oblique impressions, with a marginal row of angular pits, where the collar meets the constricted neck.

A flat-lipped sherd, lined by short indents that overlie three horizontal lines with a band of slanting lines beneath, margined below by a row of deep angular indents.

A flat-lipped sherd, with a complicated pattern covering the collar, consisting of rows of corded lines, horizontal and oblique, presumably impressed with a dentate wheel or cord-wrapped rouletting tool, margined near neck by rouletted slanting lines of punctate dots, emphasized at intervals by little round protuberances or knobs.

A sherd covered with an encircling series of oblique lines, margined above neck by short vertical indents.

A sherd spanned by oblique lines à la chevron, bounded near neck by an encircling row of deep notches, made with an angular punch.

An angular frieze piece with the angle flanked by broad slanting indentations in zigzag form.

The remaining sherds are similarly adorned with rows of horizontal and slanting incisions, margined near neck by an encircling band of pits or notches. Needless to add that the fragments just described are definitely assignable to Iroquois fictile technique.

LIST OF OBJECTS

Following is a summary of the memorials attributable to aboriginal activity under this rock:

Flint arrow point, stemmed and notched, two inches long.

Triangular arrow point, of argillite, one and a half inches long.

Perfect triangular arrow point, of argillite, one and a quarter inches long.

Triangular arrow point, of chert, an inch long.

Triangular arrow point, of flint, less than an inch long.

Triangular scraper of argillite, two inches long.

Base of flint point.
Fragment of stemmed arrow point, of slate.
Base of large flint blade.
Scores of chips.
Pitted hammerstone.
Two bone awls.
Tip of bone awl.
Worked antler prong, its sides slightly angular by carving and covered with a series of shallow scotches; probably a tally bone.
Worked antler prong, with part of its side sliced off, possibly used as a flaking tool in the fashioning of arrow points.
Some two hundred sherds.
Quantities of fresh water mussels.
Thousands of animal bones.

GENERAL COMMENTS

In view of the profusion and variety of the culture remains extant at the Shohola Creek rock shelter, there can be no question that it was a favorite stopping-place of the savages. Nay, on the basis of the archæological evidence here afforded it is second only to Prospect Rock station, which turned out to be the most remarkable rock haunt in Delaware River valley between Hancock and Dingman's Ferry.

Leaving aside some twenty rock haunts that were either too insignificant or too far away from the valley, the other principal sites in the order of their importance are those at Narrowsburg, on Upper Otter Brook, at Shohola and at the mouth of Rock Run. While at most of them Iroquois cultural influence could be recognized, it was nowhere more strikingly demonstrated than at the six sites just enumerated.

As regards the Prospect Rock, Shohola and Shohola Creek shelters, they did not only reveal a predominance of Iroquois over Algonkin pottery, but there was further noted between them a curious correlation with reference to the ratio shown by the two types. To wit, at all three of them the proportion of Iroquois to Algonkin ware was about as three to one.

The fewness of projectile points at the Shohola Creek den, as, indeed, at all others along Delaware River, is something of a puzzle when contrasted with the abundance of this type of artifacts noted heretofore at all the larger rockhouses in both the Ramapo and Shawangunk mountains. For once, not all of the seven arrow points were of the prevailing triangular shape, as two of them represented the stemmed and notched variety, so commonly met with throughout New Jersey.

Considering the prodigious quantities of animal bones found buried in the subsoil, it is obvious that they bespeak frequent feasts. This shelter lay within hailing distance of a much trodden prehistoric pathway which, starting at Minisink Island or thereabouts, cut across southeastern Pike County to Shohola Falls, whence it followed Shohola Creek to Shohola on the banks of Delaware River.

SITES ALONG SHOHOLA CREEK

Amid the hills of Pike County, some six miles south of Lackawaxen, there were located an additional rock shelter and eight camp sites. The rock shelter, a very small one, lies at Shohola Falls on the east bank of the creek, near where it begins plunging down the rocks. Its exploration yielded a few small deer bones, some tiny flint chips and fractured unio shells, from three to five inches below the ground.

All the camp sites but one lay on the west bank of Shohola Creek, between Shohola Falls and Shohola, a distance of ten miles. (See chart.) The first of these was on the level fields, near Cleveland McCain's farm, about a mile and a half north of the falls. The second one, a mile farther north, occupied the flats immediately south of the confluence of Shohola and Greeley creeks, the latter named Balliard Creek on the contour map. The Shohola Creek rock den is one-third of a mile to the southwest of it. The third site lay on the north bank of Greeley Creek, about a mile west of its junction with Shohola Creek.

There was a camp near McCain School, at the southern base of German Hill, near where Wild Cat Run, coursing down its slopes, empties into Shohola Creek. About a mile farther east, also at the base of German Hill, there was a camp on the Hugh McCain farm, a short distance from Cold Spring Lake. Traces of a camp were found on the level stretch of ground, two and a half miles northeast of Cold Spring Lake.

The most important of all the prehistoric encampments along here appears to have been situated on what is locally known as Big Island, an extensive tract of arable land, partly on Jack Shield's farm, some two miles south of the mouth of the creek. An abundance of artifacts of various types, attesting to frequent if not prolonged occupations, are reported to have been picked up on these fields ever since they began being cultivated. Arrow points and netsinkers are still being found, especially after ploughing. It is an attractive locality, a little mountain vale hedged in by wooded hills all about, and the very spot that an Indian would have chosen for his winter quarters. Being only two miles from Delaware River and close to a well trodden ancient thoroughfare,

it was beyond doubt much haunted by the redskins, as is proven indeed by the numerous reminders they left behind.

Lastly, there were several encampments on the high river bank, north of the mouth of the creek, at Shohola. Vestiges of these have become completely obliterated ever since Shohola, some sixty years ago, began to develop into a summer resort, a process involving the erection of numerous cottages, the grading of streets and a general disturbance of the top soil.

THE MINISINK-SHOHOLA TRAIL

Although this aboriginal highway has already been referred to more than once, at least as regards that fraction of it which, running from Shohola Falls to the mouth of Shohola Creek, coincided with the terminal section of the noted Wyoming Valley-Shohola war path, it will not be unprofitable to discuss it in its entirety, assembling whatever data we may have relative to its route and character.

Designating it as the Minisink-Shohola trail is of course presuming that it started at Minisink Island. Yet, while admitting that many another path, having a different starting point, such as Milford for example, may have had the same goal, namely Shohola, it is nevertheless most likely that the main point of departure for this place was at Minisink Island if for no other reason than that this particular locality was a center of intense aboriginal life and withal densely populated.

Obviously every trail, important or otherwise, had its divarications or offshoots and it is therefore altogether credible that other paths, issuing likewise from some point on the Delaware, converged into this main thoroughfare, even as this thoroughfare united with the Wyoming Valley path near Shohola Falls, merging into one along the remaining distance to Delaware River.

Speculating on the probable route of the Minisink-Shohola path, it may be suggested that it followed Raymond Kill as far as Log Tavern Ponds, thence, skirting the swamps north of it, to the Falls. All this portion of the route is highly conjectural, however, the country through which it passes being rough underfoot, hilly and full of wet meadows and marshes. Yet we may be certain that it threaded its way wherever traveling was easiest, avoiding bogs, tangled thickets and steep hills. That such a course would be devious to a degree may be readily imagined.

As for the rest of the way between Shohola Falls and Shohola, there obtains little uncertainty concerning its exact position. Most of its route was predetermined, as it were, by a narrow, winding dale, watered by Shohola Creek. To such an extent is this the case that the occurrence

of a trail along here could have been assumed on à priori grounds, i. e., quite independently of any archæological reconnaissance in its support. Yet, in addition, there are the camp sites, scattered along the banks of the creek and nowhere else, attesting the Redman's quondam presence and marking, in no uncertain manner, the road he traveled.

SIGNIFICANCE OF THE LACKAWAXEN-SHOHOLA AREA

In this region, barely twenty square miles in extent, there were found nine rock shelters, three villages, twelve camp sites and one burial place. A massing of sites like this furnishes convincing proof of frequent if not prolonged aboriginal occupancy. And this is not surprising when we reflect that it was favorably situated near the confluence of two large streams and that, as a further attraction, its hinterland of hills and dales was the habitat of abundant wild life, so indispensable to the savage alike for food and peltry. Thus the burden of the evidence goes to prove that this was the most important district in Delaware River valley, excepting only the section of broad river flats between Port Jervis or Matamoras and Dingman's Ferry.

DELAWARE RIVER SITES BETWEEN SHOHOLA AND MILL RIFT, PIKE COUNTY

Below Shohola, as far as Mill Rift, the bold wooded hills hug the river more closely, leaving but narrow strips of shore line, save in the few places where they sheer off far enough to make room for broader bottoms. Consequently, there are but few sites along this part of the valley. (See map.)

There are indications of a camp on the flats a mile and a half above Parker's Glen and also at a point half a mile above it, opposite Handsome Eddy, New York. Another camp occupied the flats midway between Parker's Glen and Pond Eddy. At Pond Eddy itself there was another camping ground, all traces of which have been obliterated. At this place terminated the old Shacopee trail, to be discussed later, leading across the mountains from Milford. The wide bottoms opposite Fish Cabin Creek, New York, a mile and a half below Pond Eddy, have evidently been the site of a larger encampment, since numerous specimens of the Redman's handiwork have been recovered therefrom.

At Mill Rift, the aborigines had camped at two places, namely, on the sloping fields north of the mouth of Bushkill Creek, and on the uplands south of its mouth.

TOM QUICK'S CABIN

A small rock shelter, showing traces of Indian occupation, was discovered between Pond Eddy and Mill Rift, a scant mile south of Delaware River. This place is known as Tom Quick's Cabin, for it is reputed to have been one of the stopping places of Tom Quick, surnamed the Indian slayer. Born at Milford about the year 1729, he is said to have carried on a war of extermination against the redskins for the sake of avenging his father's death who had fallen victim to their tomahawks. However that may be, apart from scant vestiges of an aboriginal character, there were found the remains of a stone wall at the extreme left of the shelter and while this had probably been built by some white man, there was not the slightest evidence to show that Tom Quick was its builder. (See fig. 50.)

DESCRIPTION OF THE CABIN

It was only after much reconnoitering that the researcher succeeded in finding the cabin. It lies in a broad shallow depression high upon the northern slope of the mountain, at an altitude of 1,100 feet above sea level, about one-half mile north of Bushkill Creek and some three miles due west of Mill Rift, as the crow flies, but no less than five miles along dim and crooked trails.

Structurally, it is an ordinary overhanging rock, i. e., a shallow cavity at the foot of a low ledge, quite inconspicuous and easily missed. The length of the sheltered space beneath the projecting roof is some ten feet and the latter juts out only about six feet. To its left, as just remarked, are the crumbling remains of a stone wall. Its exposure is northeastward. A spring run is within a stone's throw and we may be certain that without such a water supply this covert would have been spurned altogether, for it is after all a poor one, small in size and providing but little protection from the elements, yet it appears to be the only one for a radius of several miles.

THE EXPLORATION

The floor under the rock was gravelly and level barring some boulders, partially buried in the soil. There were no surface indications of a prehistoric nature nor did the face of the cliff reveal any smoke stains,, such as would have been due to fire.

A trench was dug along the rear wall, beginning at the left near the stone wall and continuing the whole extent of the sheltered space. Nothing, however, came to view until the section opposite the center of the rock had been reached. Here there was a thin deposit of what

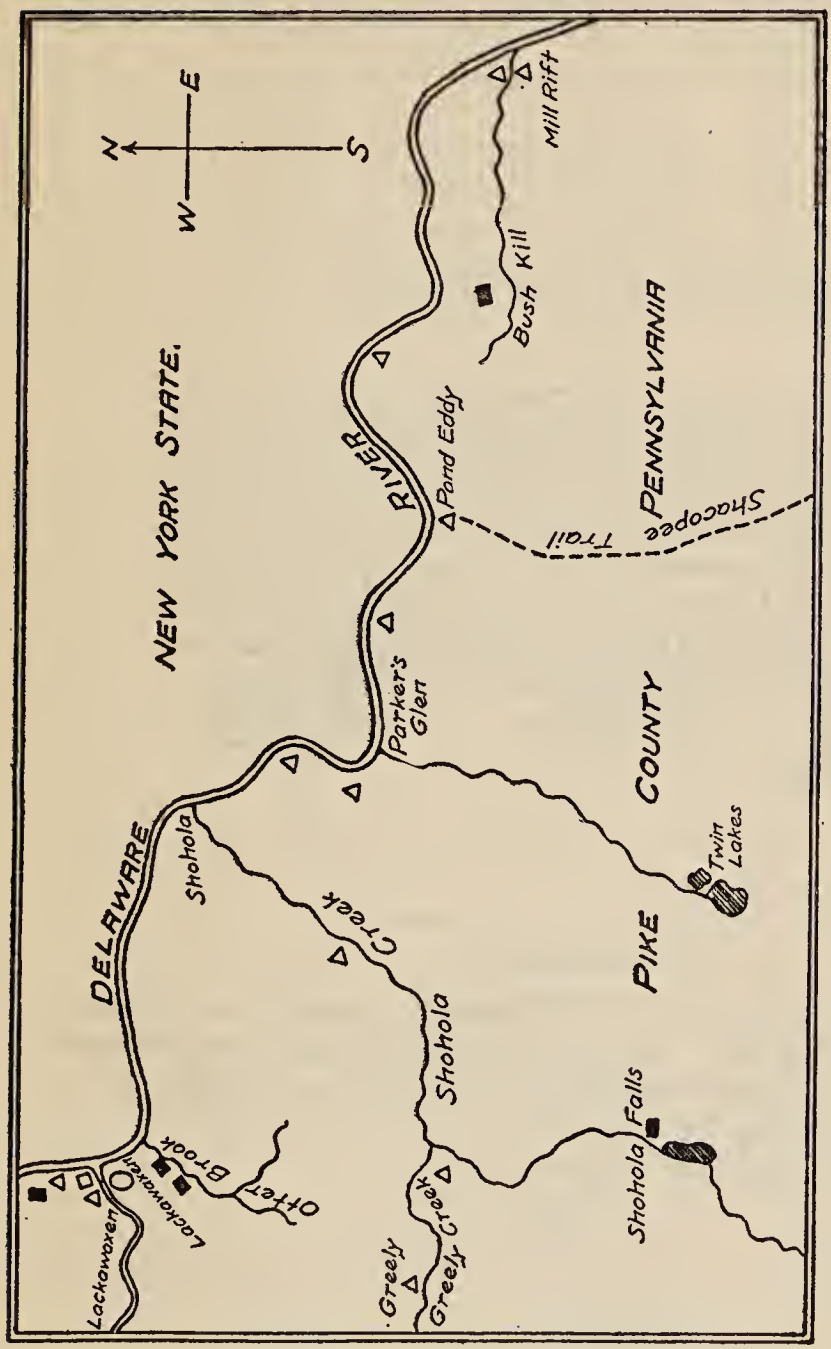
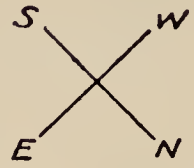
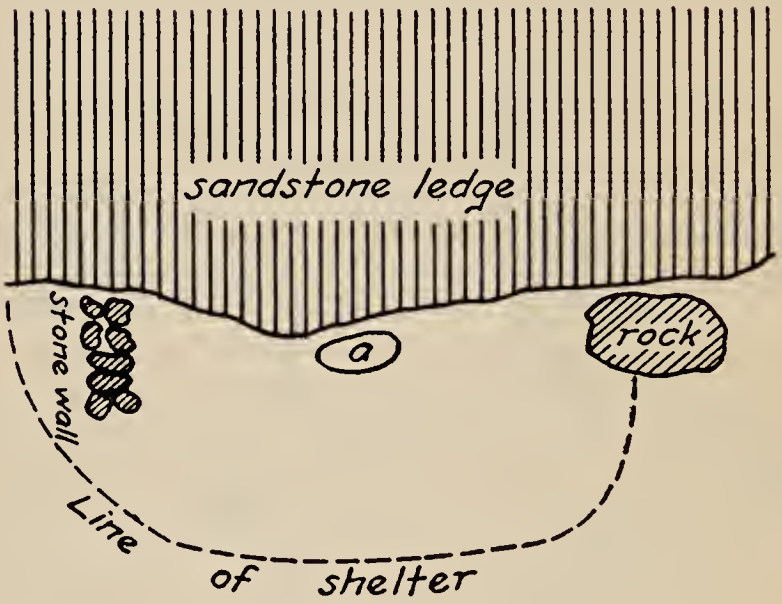

N
S
E
W
NEW YORK STATE.
PENNSYLVANIA
DELAWARE RIVER
Mill Rift
Bush Kill
Pond Eddy
Shacopee Trail
Parker's Glen
Shohola Creek
Twin Lakes
PIKE COUNTY
Shohola Falls
Shohola
Otter Brook
Lackawaxen
Greely
Greely Creek
Lackawaxen
Map of Delaware River valley, between Lackawaxen and Mill Rift, giving position of Indian sites in Pike County, Pennsylvania.
■ rock shelters. ○ village sites.
△ camp sites. □ burial place.
Scale, 5 miles to 3 inches.
0 1 2 3 4 5

FIG. 50



Pike County, Pennsylvania.



Ground plan of Tom Quick's Cabin, so called, containing some aboriginal remains. Length of sheltered space about 10 feet, overhang 6 feet, fronting northeast.

a. Traces of a hearth.

FIG. 51

seemed to be ancient ashes, two inches below the surface and about three inches thick. It yielded a few small bones, apparently of deer, and some chips of chert and red jasper. A crackled pebble was also noticed. This sort of débris indicated a fireplace, but it was a small one, scarcely exceeding a square foot in extent. Nothing was found in the rest of the shelter.

The story derivable from evidence such as this may be that of a roving hunter who chanced to come this way from some point along Delaware River and, finding himself overtaken by darkness, built a fire, cooked some of his venison and fashioned a few arrow points of chert and jasper, spending a night at this place. As for Tom Quick and his reputed sojourns under its roof, quien sabe!

ABORIGINAL ROUTES OF TRAVEL

Speaking of primitive thoroughfares traversing this region antecedent to the arrival of the white man, there is historical testimony with respect to the one-time occurrence of a trail flanking Lackawaxen River for some distance from its mouth. To be more explicit, after the battle of Minisink Ford, in 1779, so disastrous to the cause of the patriots, Brant, commander-in-chief of the Indian and Tory forces, is reported on good authority to have sent the booty in charge of a body of warriors up the Lackawaxen trail. Hence, both on the strength of this historic reference and from considerations of a topographic nature there was a path along the Lackawaxen. On the other hand, the infrequency and apparent insignificance of all the valley sites from Lackawaxen to Indian Orchard, Wayne County, seems to demonstrate that it was only a secondary path.

Judging again from the lay of the land and the distribution and character of sites along Delaware River between Port Jervis and Lackawaxen, we may safely assume the former presence of a trail along its banks. Yet, as here also, most of the sites were quite small, one is inclined to think that this path was likewise only a minor one, despite the fact that great river valleys were usually traversed by prehistoric highways of the first order. As concerns Delaware River valley below Port Jervis as far as Trenton, New Jersey, there cannot be the slightest doubt that it was the site of a much beaten thoroughfare passing from village to village, many of them quite permanent.

It would seem indeed that contrary to the general rule the important aboriginal avenues within this rugged territory were overland routes, cutting across the mountains from river to river, that is to say, from the Delaware to the Susquehanna and also from the Delaware near

Minisink Island and Milford across Pike County to Pond Eddy, Shohola and Lackawaxen. Thus there is historical evidence to the effect that a famous prehistoric highway, the so called Cochecton-Wyoming path connected Delaware and Susqehanna rivers by crossing the mountains of Wayne and Lackawanna counties, some thirty miles north of the Lackawaxen.

Further, a war path ran from the Delaware to Shohola Falls and across the Wallenpaupack to Wyoming Valley, approaching the Lackawaxen to within six miles. It is claimed that the colonists from Connecticut in the latter half of the eighteenth century availed themselves of this route when traveling through the wilderness to Wyoming Valley, Pennsylvania. It will thus be seen that the valley of the Lackawaxen lay intermediate between two important ancient avenues and it may be presumed that many a by-path branched off from either to Lackawaxen River valley, one of these being the Blooming Grove Creek path, a short cut between Glen Eyre and the Shohola Falls war path.

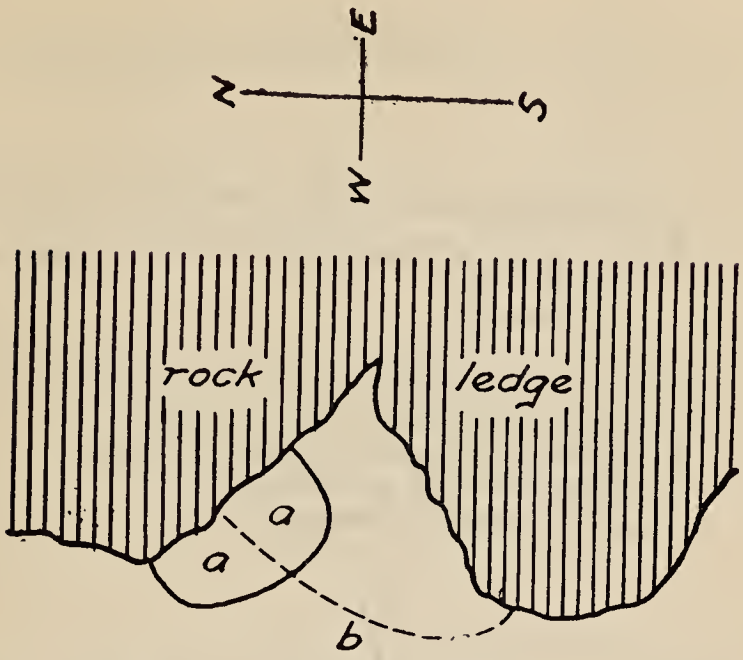
SECONDARY TRAILS

Apart from the above important thoroughfares, there existed to a certainty many a by-way, adroitly chosen with reference to the lay of the land, winding deviously through intervale and ravine along the banks of streams and leading to the good hunting grounds in the vicinity of pond and swamp. And who doubts that the Indian, this matchless student of the wild, chose unerringly the most practicable route to his objective point!

Here we shall concern ourselves only with such paths as may be supposed to have diverged from the banks of the Delaware, in Pike County, between Masthope and Mill Rift. That they were actually in existence and used by the natives cannot be seriously disputed in the light of both topographic conditions and the position of camp sites. Although most of these have been previously touched upon, it may not be improper to review them collectively.

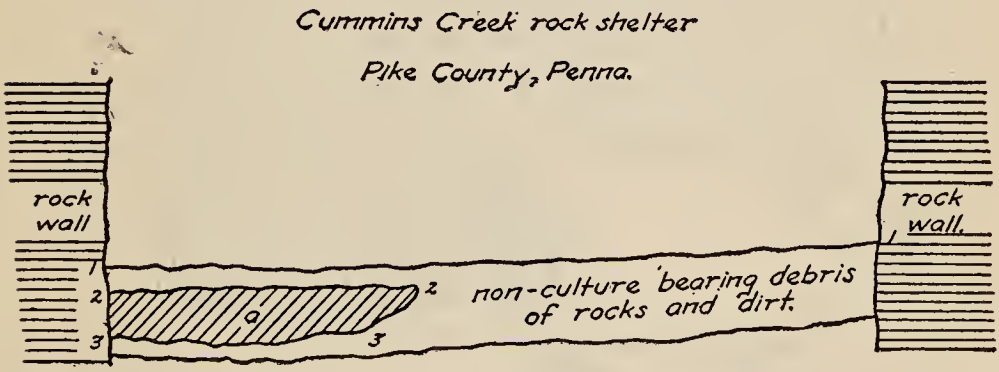
In all probability, a trail skirted the banks of Masthope Creek as well as those of its tributary, Rattlesnake Creek, some six miles from the river, permitting of approach to the group of ponds in and about the present Forest Lake Park.

By the same token, a trail ran from Westcolang, on Delaware River, to Westcolang Pond, on the shores of which was a prehistoric fishing camp. The next two thoroughfares, passing up Lackawaxen and Otter Brook valleys, have already been dealt with. Shohola, four miles farther downstream, marked the termination of the famous Wyoming Valley-Shohola Falls war path.



Ground plan of Cummins Creek rock shelter. Pike County, Penna.
a. a. Patch containing remains.
b. Line of shelter.

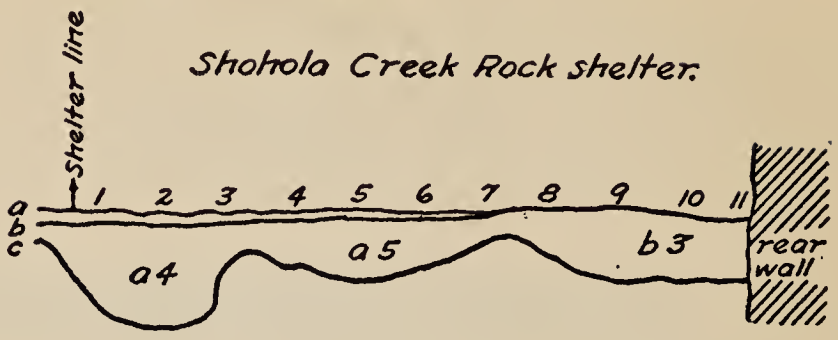
FIG. 52



Longitudinal section of trench along shelter line.

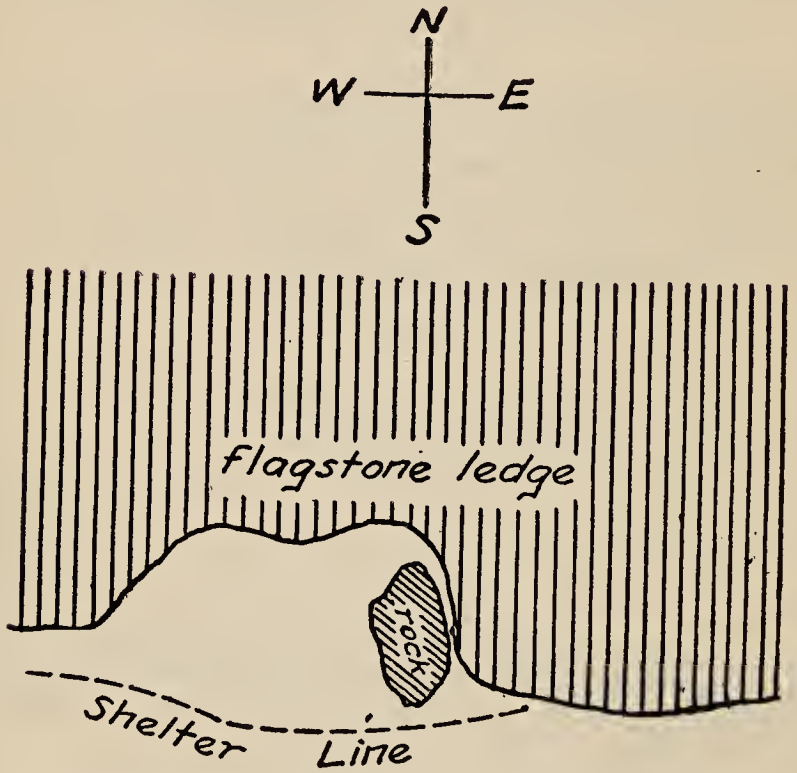
1-1 Modern surface, some ten feet across.
2-2 Indian level.
3-3. Depth of excavation, about 14 inches.
a. Fireplace.

FIG. 53



11-foot transverse section through fireplaces a4 and a5 and bone deposit b3.
a. Modern surface; Indian level.
c. Lower limit of debris.
Drawn true to scale.

FIG. 54



Ground plan of prehistoric shelter between Kimbles and Baoba, on the north bank of the Lackawaxen. About 8 feet wide by 6 feet deep; southerly exposure.

FIG. 55

SHACOPEE TRAIL

This old Indian pathway traversed the mountains in a north-south direction from Pond Eddy to Milford, a distance of nine miles. The white man's mountain road was laid out, more than a hundred years ago, along the path selected by the Redman. Today, it is little used and sections of it are quite impassable for wagons, though fairly good underfoot. Having formerly been an Indian trail, the present author made a study of it.

Starting at Pond Eddy, 500 feet above sea level, the path runs south, climbing a steep hill, on the top of which it skirts the western end of a swamp, at an elevation of 1,300 feet; thence it crosses the easterly slopes of Buckhorn Ridge, a watershed, 1,400 feet high; thence it goes gradually downhill, one-half mile west of Wallowing Hole and, farther on, west of Vantine Brook, toward the Sawkill and so on in a southeasterly direction to Milford, 400 feet above sea level.

The last of the minor trails, ramifying from Delaware River, starts at Mill Rift, following the Bushkill and leading past a big rhododendron swamp, several miles uphill, where anciently there must have been good hunting.

Before concluding this account, reference ought to be made to the conditions which formerly must have affected the Delaware River trail on the Pike County side, between Shohola and Mill Rift. This trail would seem to have been discontinuous in places, proceeding by détours over the ledges or else by crossing and re-crossing the river. Indeed, so difficult was this terrain, with the mountainsides often rising abruptly from the water's edge, that the roadbed of the Erie railroad had to be blasted out of the solid cliffs at more than one point. However, as pointed out elsewhere, the river nowadays is shallower and broader than it used to be by reason of the perpetual deposition of sediments that are building up its bed and cause it to overflow its bank. Hence, ere the shore lines became submerged, there was, in all probability, plenty of room for a pathway along the river.

A LENAPE TERRITORY

The headquarters of the hunters, once roaming this valley and adjacent mountains, were most probably on Delaware River, near Minisink Island. Though Iroquois influence is quite noticeable in the culture of these people, there is no question that they were of Algonkin stock or to be more precise, they belonged to the Munsee division of the Lenni Lenâpé.

NOTES ON THE ARCHÆOLOGY OF SOUTHEASTERN PIKE COUNTY

During repeated visits to Port Jervis, New York, the present author had occasion to make an archæological survey of much of this area, both of its lowlands and the surrounding hills. This region is known to have been the theatre of considerable aboriginal activity, a point of convergence toward which life used to gravitate antecedent to the appearance of the European conqueror.

Many sites, some of them villages, were once situated along both banks of the Delaware below Port Jervis, the Redman's Mahackemeck, as well as along the Neversink, its most important tributary hereabouts. Time was when the lowlands along the river's bank were replete with the tell-tale marks of the Indian's erstwhile presence. Innumerable specimens of every type have been collected from these fields proving that he must have dwelt here for untold centuries. Today, his former village and camp sites have become all but depleted of their treasures so that fresh finds are made only occasionally. Not so, however, with the rock shelters in the circumjacent mountains, of which the author discovered no less than ten, all of them undisturbed. Only two of these lie in Southeastern Pike County; the others were found scattered along the northwesterly base of Shawangunk Mountain, Orange County, New York.

Attention was concentrated upon the Pennsylvania side of the river with its broad bottoms of arable soil that provided many desirable sites for occupation. Manifestly, topographic factors determined largely the distribution of camps as well as their size and relative frequency. While few and far between in mountainous districts, they were plentiful in broad river valleys or on well-watered plains.

As a matter of fact, the New Jersey side of the Delaware was no less replete with these vestiges of one-time Indian occupancy, including the most important settlement of all this territory, namely, the town of Minisink or t'Schichte Wacki, opposite Minisink Island, famous for having been the headquarters or council seat of the Minisink, the principal clan of the Munsee division of the Lenni Lenâpé.

PHYSIOGRAPHY OF THE REGION

For scores of miles above Port Jervis Delaware River pursues a tortuous course, generally in an easterly direction, through narrow valleys

amidst a welter of rugged hills. In places the valley widens sufficiently to form flats suitable for habitation, yet a massing of sites, rendered possible by extensive tracts of fertile soil adapted to cultivation, is met with in but a few localities such, for example, as at Lackawaxen, Cochecton (Cushetunk), Callicoon, Stockport and Hancock, all of which places were the sites of Indian towns.

At Port Jervis, however, the Delaware emerges upon a more open country, a broad valley, arable and quite level, flanked on the north by the hills of Sullivan County, New York, on the east by Shawangunk Mountain and on the west by those of Pike County, Pennsylvania. The latter rise abruptly from the valley of the Delaware, here about four hundred feet above the level of the sea, forming a much dissected tableland, some twelve hundred feet above the tides and more than a thousand square miles in extent.

The topography of this section being that of a plateau, terminating suddenly toward Delaware River, the streams heading on its uplands, are seen plunging down the steep declivities or making their way to the river through deep ravines. It was doubtless along these that the natives, dwelling on the rich alluvial bottom lands between the foot of the hills and the Delaware, gained the higher elevation of the hinterland, at their time a splendid hunting ground.

SITUATION OF SITES

Along the twenty-odd miles of Delaware River valley from a point a little below Mill Rift, a hamlet four miles above Port Jervis, to Dingman's Ferry, about twenty aboriginal stations were found and examined. The author's account is probably far from complete, for there is hardly any doubt that originally there must have been many more sites throughout this favored district. Some of these may have become effaced in consequence of the white man's activities, while others, though still existing, he is sure to have missed as, at the time being, they could not be identified by reason of their being covered with vegetation.

BETWEEN MILL RIFT AND MATAMORAS

Just below Mill Rift the mountain abuts on the river in steep escarpments some two miles long with no possibility of establishing camps along their base. As a result, no signs of Indian occupation were noted in this section of the valley and the terrace-like top of the scarp, now traversed by a modern road, was too high above the stream to supply attractive sites.

Opposite Sparrow Bush, in New York State, the rocky eminence be-

gins to give way to sandy bottoms, some twenty feet above the level of the Delaware. Along them objects of primitive industry have not infrequently been found, notably at a point opposite Germantown, New York State. Going over the ground, the author encountered various evidences of a prehistoric type, such as chunks of raw material suitable for the manufacture of arrow points, together with chips, potsherds and netsinkers.

MATAMORAS

Almost immediately on leaving the mountains, the river sweeps around in a bold curve of nearly ninety degrees, changing its course from southeast to west southwest. Here, within the bend of the river, everything combined to render the neighborhood, in the extreme easterly corner of Pennsylvania, one of the Redman's most favored districts. That the Delaware in those days abounded with fish of many species is certain beyond peradventure and this potential food supply was, no doubt, eagerly exploited, contributing in no small degree to the native's sustenance and affording him, moreover, a welcome change from a meat diet. Again, the land being fertile and readily arable even with his crude stone implements, we doubt not that he utilized part of it for raising beans, squashes and also tobacco.

It is reasonably certain that at least one important town was situated within this section, probably in the very bend of the river, at Matamoras, opposite Tristate, New York. According to an old chart, published at Amsterdam by Adriæn Van der Donck, in the year 1656, this vicinity is designated Mecharienkonck and spoken of in the accompanying report as a large Indian town, situated near the junction of the Neversink (Mahackemack) with the Delaware. There is, however, some ground for assuming that the bulk or all of the settlement, thus named, lay on the Pennsylvania side of the river, directly across from Tristate, for not only has this locality proved superior in remains, but it was rather more favorably situated and less rocky underfoot.

Traces of at least five camp sites were found on the two-mile strip of river bank below this old settlement. However, we shall probably come much nearer the truth by assuming that there was here a practically continuous succession of sites, coalescing the one into the other. And it is perhaps no exaggeration to say that camps came to be established at one time or another at almost any point along the river within this district, but any attempt to ascertain even roughly the position of each must needs be futile.

THE MATAMORAS INDIAN CAVE

Immediately back of Matamoras the mountain rises abruptly in sheer unscalable crags with a talus slope at its base. About 300 feet up this frowning promontory, at the very verge of a headlong declivity, overlooking the valley from the east, there is a cavern-like formation or beetling cliff, the dirt floor of which is reported to show traces of ancient fireplaces and to have yielded stone implements of aboriginal workmanship.

The cave and its opening are distinctly visible from the plain below, but though one may get quite close to it by ascending the rather gently sloping shoulder of the mountain, the only practicable route, the final approach of a hundred steps or more cannot be made except along a narrow shelve at the brink of the precipice. Hence this place is inaccessible to those who are not entirely immune from attacks of vertigo. The author, much as he wished to investigate it, gave up the attempt when he reached the critical passage. However, it has been visited occasionally, particularly by boys, and the reports current about finds having been made there, seem to be authentic, coming as they do from trustworthy sources.

From what we know of the Indian and his ways, it would have been altogether consistent with him to haunt a spot thus situated if for no other reason than that it was a superb coign of vantage, affording not only a wide vista over much of Matamoras plains and the valley of the Neversink but over the neighboring foothills of Shawangunk Mountain farther east.

Two sites were noted near the mouth of a small stream, opposite the upper end of Mashipacong Island, three miles below Matamoras. Near here the natives used to ford the river to the island.

Less than a mile north of the wading-place, 200 feet up the hillside, Indian relics have been found near a spring on a deserted farm, many years ago.

QUICKTOWN SCHOOL

There is a camp at the mouth of Cummins Creek, opposite the lower end of Mashipacong Island, and a second one, also on the banks of the creek, close to the highway and within a few steps from the schoolhouse.

THE CUMMINS CREEK ROCK SHELTER

A small aboriginal rock shelter was located north of Quicktown School, just within the border of the mountainous area, on the east bank of Cummins Creek, at a point barely a mile from its junction with Delaware River. The immediate environs of this prehistoric station

are wild and picturesque, their main feature being a deep hollow or ravine, shaded by stately hemlocks, pines and hardwood trees, a ravine which trends northward for miles between rugged mountain sides, towering more than five hundred feet above the bed of the creek, while to the south or directly below this station it assumes a gentler aspect, broadening out and emerging upon Delaware River valley.

Within the southern extremity of this gorge there occurs an isolated cliff, perched upon a rise of ground some twenty feet uphill. The shelter in question lies at the foot of this cliff and it fronts westward, overlooking Cummins Creek, a rapid-flowing stream, which brawls along its boulder-strewn channel and here comes cascading over ledges, collecting its waters in a large pool near by.

CONFORMATION OF THE ROCK

In respect of general shape or structural features this rock shelter is unusual, for it is not an overhanging ledge of the type so prevailingly encountered in mountainous districts and as such so frequently found yielding traces of former Indian occupancy. Rather, it resembles a shallow cave penetrating into the interior of the cliff, no part of which juts out roof-like from its face. To be more precise, the covert is wedge-shaped and its two walls, about ten feet apart at the base of the wedge or along the outside, form an angle of some sixty degrees, intersecting at a point about ten feet in. The roof, while high above the floor in its forward portion, slants downward to the rear and, besides, it falls short of covering all of the space enclosed between the two converging walls of the angle or wedge, but cuts obliquely across, passing from the outer corner at the right to a point some five feet in on the opposite wall. (See fig. 52.)

THE WORK OF EXCAVATION

Sweeping out the dead leaves that had been blown in by the wind to a depth of more than a foot, the floor of the cave was seen to be quite level and composed largely of rubble or small stones, but there were no signs hinting at erstwhile occupation such as chips and potsherds, which have not infrequently been noted littering the shelter floors. Nor did the adjoining walls give any indication of ancient smoke marks or the action of fires. Considering, however, the nonresistant nature of this rock, which is a sandstone of Devonian age, readily disintegrating under the influence of atmospheric agencies, all such vestiges would necessarily have vanished long ago with the constant wearing away of its outer surfaces. Indeed, subsequent exploration showed that the deposits which had accumulated under this shelter consisted mainly of

rock débris, mixed with a little dirt, which had apparently been derived from the weathering of roof and walls. To all appearances, the place had never been disturbed though lying but a short distance from the river road, in a locality, the scenic charms of which have for years been attracting numerous visitors.

A trench, two feet wide, was dug from wall to wall along the opening, but no mementoes of a prehistoric character were forthcoming until a depth of five inches was attained. (See Fig. 53.) The first telltale mark was nothing better than a tiny chert chip, occurring close to the left-hand wall just outside of the shelter line, yet, albeit unpretentious, it supplied convincing proof of the savage's former sojourn at this spot.

The subsoil in this portion was of a darker hue and less rocky, and embedded therein were small quantities of ancient ashes in association with heat-stained stones, which plainly bespoke a fireplace. Quite a few chips, mostly of cherty material, were met with at lower levels, buried within this fireplace area to a depth of fourteen inches.

At the six-inch level, also near the left-hand wall, three potrims came to view, manifestly fragments of a single jar, exhibiting the broad collar and constricted neck peculiar to Iroquoian earthenware. The ornamentation, incised upon the collar, displayed the conventional chevron design of parallel and oblique lines. Additional sherds were exhumed at still lower strata, some of them nearly fourteen inches beneath the surface. All of the latter, however, were plain and diminutive, averaging the size of a nickel, of a brown color and the clay, composing them, had been tempered with finely ground quartz so as to increase its resistance and durability.

Aside from chips and sherds, the débris afforded a small quantity of arrow points, namely, two triangular, neatly fashioned chert points, with indented base, an inch long and of practically identical appearance, lying close together, some six inches below the top soil; a rough, triangular flint point, somewhat over an inch in length; a leaf-shaped, imperfect slate point, an inch long and a fragment of a triangular chert point, also an inch in length. The last-named objects lay scattered at levels of from six to ten inches below the top.

There were further found some fifty bones, large and small, mostly cervine or belonging to deer, not a few of which had been in contact with the ancient camp fire, blackened and charred as they were.

Doubtless, the most interesting reminder of the Indian's activity in this place was a piece of tortoise shell, exhibiting a small circular hole in its center. That this perforation, perfect as it is, was not due to accident, but had been made by the hand of man, viz., by some pre-

historic artificer, seems certain beyond peradventure. It lay superficially buried, only about four inches deep, a foot or so from the left-hand wall but well within the sheltering roof.

It is significant that all this medley of cultural débris was concentrated in a comparatively narrow and fairly well circumscribed patch, about six feet long by four feet wide and more than a foot in thickness, extending along the left-hand wall to within five feet of the innermost point of this wedge-shaped covert, thus lying partly outside the shelter line. That this section was the site of a hearth or fireplace, as already intimated, cannot admit of any doubt.

As regards the right-hand portion of the shelter, nothing of archæological moment came to sight, though it was trenched to a depth of a foot.

THE TELL-TALE MARKS

Analyzing the evidence furnished by the assortment of cultural vestiges under this rock, we may arrive at a few general conclusions anent those who availed themselves of its protection. In the first place, the scantiness of these remnants, both as to variety and quantity, may be taken to denote that it was seldom visited and on each occasion for but a brief time. Why this should have been so, may seem anomalous in virtue of the fact that it lay near a multitude of great Delaware River stations, whence, we may presume, it was easily accessible by good trails.

On second thought, however, we are led to believe that its very propinquity to such a center of aboriginal life, with its many natural advantages in the way of fishing, excellent camp sites and fecundity of soil, was likely to discourage its use as a place for habitation. And, to be sure, there are numerous examples of rock haunts that seem to parallel this state of relative avoidance, evidently for no other reason than that they were similarly situated. Contrariwise, important prehistoric rock houses, i. e., such as were haunted ever and anon, if judged by their abundant archæological contents, have been invariably met with in the fastnesses of the mountains, remote from the more permanent settlements in the river valleys. Amid such surroundings, the roving huntsman was glad, indeed, to utilize these ready-made coverts, having no other choice, with the domestic hearth-fire so far away.

It is worth noting that four of the five arrow points found at this place were triangular in shape and of nearly the same size. In fact, two of them were virtually identical in every detail. We may therefore surmise that they were produced by the same individual.

Distributed through the dirt were some sixty chips, most of which consisted of chert, the remainder of flint, quartz, slate and argillite. This suggests a small workshop where arrow points of the above materials were manufactured.

A careful examination of the pottery fragments seems to indicate that they all belonged to a single vessel and this vessel was unquestionably of an Iroquoian pattern, exhibiting, as it did, a raised collar, decorated with incised lines, as well as a constricted neck. The plain sherds, of which several score were found, constituted presumably the badly shattered remains of the lower portion of this aboriginal jar.

The occurrence of pottery in this cavern permits us to draw yet another inference. If, as has been averred on good authority, a male Indian would not deign to handle pots let alone carry them from place to place, we are justified in predicating the former presence of squaws at this spot. In that case, they were probably accompanied by their braves.

As stated in the foregoing, the existence of a fireplace was plainly revealed by heat-cracked pebbles and bits of centuries-old charcoal as well as by the darker color of the dirt. Embedded in this fire-stained deposit of mingled rocks and soil were many deer bones and these, taken in conjunction with the pottery remains, bear witness to the fact that meals were prepared and partaken of under this ledge.

It is worth observing that the culture bearing débris was superposed by a five-inch stratum of rubble and dirt, all of which had accumulated since the Redman's last visit to this spot. In the absence of data concerning the rate of weathering, nothing can be said as to the time it took for this mass to form.

Lastly, it would seem a foregone conclusion that the ancient dwellers of this shelter were members of the Munsee tribe, nor may we doubt that a well defined trail passed from it to Delaware River, skirting the banks of Cummins Creek. If this trail continued northward, as it presumably did, traversing the rocky solitudes of what is now Pike County, it must have taken to higher ground immediately on leaving the shelter, as the route through the gorge close to the creek was impracticable, interposing all manner of physical obstacles, even as it does today.

There are traces of several camp sites between Cummins Creek and Crawford Brook, a little above Quick's Island.

Human bones and an almost perfect Indian pot were dug up from a depth of about six feet not far from the mouth of Crawford Brook when excavating for a bungalow site, a mile and a half above Milford, a few years ago.

MILFORD AND VICINITY

Indications of former camping grounds have been noted on the broad meadows just above Milford. What may have been an important encampment lay on the level plot of ground south of the mouth of the Sawkill. Another large site was found two miles below Milford, opposite the northern extremity of Minisink Island.

INDIAN POINT

Reminders of aboriginal life have been met with on the fields north and south of the mouth of Raymond Kill, opposite the lower end of Minisink Island.

LOG TAVERN PONDS

What was probably a prehistoric fishing camp occupied the level plot of ground on the southeastern shore of the easterly one of the two ponds, near the outlet of Raymond Kill. It is reported that in the past many objects of aboriginal handiwork had been picked up hereabouts. Today, the site is no longer recognizable, it having been leveled off and made into a tennis court. One of the ancient paths, connecting these ponds with Delaware River valley, may have started at the mouth of Raymond Kill, opposite Minisink Island, where there were numerous encampments, following the course of the stream wherever the lay of the land permitted.

CONASHAUGH CREEK

About a mile and a half below Indian Point Conashaugh Creek debouches into the Delaware and though no mementoes suggestive of Indian camps seem to have been found near this place, at least not recently, history tells us that it was the scene of a sanguinary encounter between a scouting party of white men and the savages, all of them fighting in true wilderness fashion from behind trees and rocks.

BELOW NAMANOCK ISLAND

The flats below Namanock Island, near the mouth of Dry Brook, have yielded abundant testimonials assignable to Indian occupation.

MOUTH OF ADAMS CREEK

Remains of camp débris used to occur on the banks of the river below Adams Creek.

ADAMS CREEK

A camping ground was located on the south bank of Adams Creek near its confluence with Long Meadow Brook, a scant three miles from the Delaware. Numerous articles of primitive industry are said to have

here been turned up by the plow years ago. At the present time it is meadow land, reverting to a state of nature, with the vegetation concealing from sight whatever tell-tale marks there may be.

DINGMAN'S FERRY

Evidences of native activity were once abundant along the river bank especially below the mouth of Dingman's Creek. The concentration of vestiges at certain spots would seem to disclose a cluster of sites distributed over a distance of nearly a mile.

ANCIENT TRAILS

In view of this area having been much favored by the aborigines, it is but natural that there should have been many an ancient path leading to the encampments here situated. Even though all vestiges of these have long ago been obliterated and though there is no information concerning the course they took, we are nevertheless not entirely at sea in our attempts to fix their former whereabouts. For one thing, factors of a topographic nature may be depended upon as furnishing us many an enlightening clue, for the Indian, like ourselves, had to consider the lay of the land in his wanderings from place to place.

Since he invariably obeyed the law of least resistance and that in such a wise as to combine ease with directness, our speculations are altogether likely to adumbrate the truth at least with regard to river valleys. Not only did these afford convenient routes requiring little or no tiresome clumbing, but they were a source of a potential food supply close at hand and permitted a choice of travel by boat. And our assumption that trails skirted the banks of the Delaware is apparently strengthened by the occurrence there of numerous sites at short intervals.

Yet aside from purely circumstantial evidence such as this, reliable though it probably is, we are fortunately in possession of something more definite in the form of historic records relating to the existence of certain prehistoric highways within the area under discussion. These give an account, however obscure, of two such thoroughfares, both of which diverged from the aboriginal village, named t' Schichte Wacki, below Minisink Island, on the Jersey side of the river.

Though one of these two avenues of ancient communication lay outside of the territory here dealt with, it is mentioned for the sake of completeness. Known as the Minisink Path, it passed southeasterly across Northern New Jersey by way of Culver's Gap to Navesink, on Shrewsbury River, south of Sandy Hook. The other trail, designated the

Minisink-Wyoming Path, ran in the opposite direction, that is, northwesterly, fording Delaware River near Minisink Island, whence it ascended the mountains either by way of Raymond Kill or Coneshaugh Creek or some other of the neighboring ravines here cutting deeply into their flanks. Having gained the high ground, it traversed Pike County, crossing the headwaters of the Wallenpaupack, whence it bore westerly to Scranton, thence down the Lackawanna to Wyoming Valley. Another path, also starting from Minisink Island, is presumed to have crossed Pike County in a northerly direction, running via. Log Tavern Ponds to the mouth of Shohola Creek and probably also of the Lackawaxen. The Shacopee trail from Milford to Pond Eddy has already been discussed.

THE WILDERNESS TRAIL

As regards the Wilderness Trail, so often alluded to in Pike County history as having been traveled by a portion of General Sullivan's army, when returning from its punitive expedition to the land of the Six Nations, in New York State, it is more than likely that it made use of sections of old Indian paths, always so welcome to the early whites.

According to tradition, it forded the Lackawaxen somewhere near Kimbles, whence it pursued a southerly course athwart the mountains via. Blooming Grove to Dingman's Ferry. Some five miles southwest of Glen Eyre a short stretch of it was pointed out to the author, all overgrown with thick shrubbery and trees. Yet, on looking more closely, one could just make out the direction it took, as it wound its way past ledges and swamps. Strangely enough, this route has never since, it seems, been used to any extent and from information received it was discarded more than a century ago.

CULTURAL ASPECTS OF THIS REGION

An inspection of several collections of relics from this area shows that the aborigines made use of quite a variety of materials in the fashioning of arrow points, spearheads, knives, scrapers and drills. Though flint and chert predominated, being readily obtainable in this part of the country, articles of quartz, quartzite, jasper and argillite are well represented.

The stone tools are essentially of Algonkin type and comprise all the various implements once in use among the Lenâpé, many of which, such as tomahawks, pestles and bannerstones, are hardly ever met with on Iroquoian sites. The arrow points are usually stemmed or notched, yet the fact that a considerable proportion of these is triangular in shape, i. e., of a kind almost exclusively employed by the Six Nations, serves

to demonstrate the cultural influence exerted by the latter upon the dwellers of this district.

With respect to earthenware remains, Iroquois influence is still more pronounced. Although many of the potsherds exhibit the simple Algonkin style of stamped ornamentation, often consisting of fabric-markings of the herringbone pattern, impressed in the soft clay with a cord-wrapt stick, something like one-half of the fragments are of a mixed style and even purely Iroquois, displaying as they do incised lines of geometric designs like the chevron, and many of the pot rims show the raised collar, sometimes angular, and constricted neck, so characteristic of Iroquois ceramic art.

The pottery remains that are Algonkin both in form and ornamentation are presumably more ancient than those which betray Iroquois origin. The former are therefore regarded as belonging to the Middle Algonkin period, while the latter are referred to the Late Algonkin. We thus observe here, as indeed throughout all the surrounding territory, a certain blending of two distinct cultures, a blending especially noticeable in the matter of earthenware yet much less so in regard to objects made of stone. Few artifacts of bone and horn have been found hereabouts though common enough on known Iroquois sites.

It is interesting to note that agricultural tools like pestles, hoes and stone mortars have been quite abundant in the region under consideration. They tell an eloquent tale of their own and assure us that the Redman's cultivated fields were near by.

It is hardly necessary to add that the occupants of this part of Delaware River valley were members of the Minisink division, with headquarters below Minisink Island on the Jersey side of the stream, and that they extended their hunting grounds over Pike County and contiguous area.

ARCHÆOLOGICAL RESEARCHES ALONG LACKAWAXEN RIVER BETWEEN KIMBLES AND THE DELAWARE

During part of the summers of 1922 and 1923 the writer made an archæological study of the lower course of Lackawaxen River, in Pike County, Pennsylvania, between Kimbles and its junction with the Delaware at Lackawaxen. Along this twelve-mile reach of the valley he located ten camp sites and three rock shelters, all of them close to the river, excepting one of the shelters which lay more than a mile away from it in an air line.

None of these sites was of any particular importance such as would attest frequent occupation on the part of the aborigines. In fact, judging from the evidence extant, they cannot have been anything but stopping places, resorted to infrequently and abandoned after a brief sojourn. Accordingly, few objects of primitive industry have been found on any of them and pottery fragments, denoting presumably the presence of squaws, appeared to be entirely absent save at the rock station above referred to as lying at some distance from the Lackawaxen.

Six of these camps lay scattered between Kimbles and Glen Eyre, i. e., over a distance of some six miles, while the other four occurred below the latter place along the river down to its mouth at Lackawaxen. Others, no doubt, have since been blotted out beyond recognition both by the railroad on the south bank and the Honesdale canal on the other.

The only large sites within this area are those at Lackawaxen and at Indian Orchard, about twenty miles upstream. The latter place appears to have been a prehistoric settlement of considerable size, as evidenced by abundant remains obtained therefrom in the past. Tradition has it that this site was one of the winter-quarters of the Redman and, if so, the spot was well chosen, it being a tract of level ground in a comparatively broad part of the valley, enclosed by mountains north and south.

PHYSICAL FEATURES

Typographically, the territory in question is one of great ruggedness, being made up of mountains and valleys, a region dotted with numerous lakes and on the whole heavily forested. The main stream draining it is the Lackawaxen, one of the larger affluents of Delaware River. Its course is mostly west and east and exceedingly tortuous, as it twists its way through deep valleys, hemmed in by rugged eminences

that range to a height of 1,400 feet, the bases of which here and there rise rampart-like from its banks. Full of rifts and rapids, its volume is swelled by many small brooks that flow down the hillside through narrow valleys and ravines. As topographical maps, comprising the southwestern portion of Pike County, are not as yet available, the writer is uncertain regarding the exact elevation of the valley of Lackawaxen River, but it may be stated to be approximately 900 feet above the level of the sea.

Rough and wild as most of this region appears today, what must it have been prior to the coming of the European alien. Even to the Indian it was doubtless an inhospitable section of country, the habitat of many species of wild life, among them such highly prized game mammals as bear, deer and elk. Obviously, a mountainous tract like Pike County did not afford many good sites for aboriginal settlement and there is good ground for assuming that it was chiefly a hunting district, invaded periodically, notably in autumn, when the fur-bearing animals were at their best. In short, it was penetrated mostly by hunters unaccompanied by squaws who stayed behind in the villages, situated principally on Delaware River, below Port Jervis.

DISTRIBUTION OF STATIONS

A diligent search along the lower course of the Lackawaxen between Kimbles and its mouth revealed, as already remarked, the existence of six camps in the open, as indicated by the familiar tell-tale marks. Invariably, these sites were located where the valley broadened out, occupying high level fields near the stream.

Aside from these camps there were here three rock haunts, that is to say, such as had been resorted to by the red huntsman while roving through this wilderness. Most probably additional sites of this description are scattered throughout its fastnesses, occurring generally in rock-rimmed ravines, where they are not easily detected. The proper season to look for them is in early spring or fall when the woods are bare of vegetation.

AT KIMBLES

A camping ground was identified on the south bank of Lackawaxen River, a short distance northwest of the railway station. Chips and chunks of raw material, mostly of chert and flint, were here scattered over several acres of land, yet being far from plentiful, it is plain that this particular site had been but rarely visited. No finished specimens came to view as these had probably been picked up long ago.

A DESTROYED ROCKHOUSE

Less than three hundred meters downstream the river breaks through a deep gorge, but the steep cliffs skirting both its banks are today much reduced in size in consequence of the exploitation of stone quarries, now abandoned. The destruction thus wrought was most extensive on the south side of the river and here, according to information received, a large shelter at the foot of the crags was blown to pieces some thirty years ago. As its situation was ideal, close to the water but beyond the reach of inundation, we may presume that the natives had made use of it.

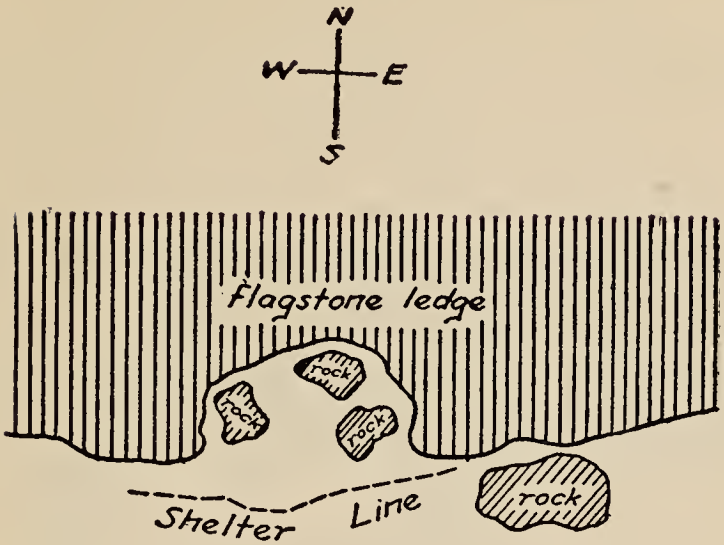
THE BAOBA NEIGHBORHOOD

About a mile and a half farther downstream, near what is known as Baoba, where the old Delaware-Hudson canal along the north bank of the Lackawaxen laves the base of a precipitous rocky ridge, the writer discovered a small overhanging rock which bore witness to former Indian occupation. (See Fig. 55.) It is not a spot that would ordinarily appeal to a roving hunter, as its nearest water supply, the Lackawaxen, is more than sixty feet beneath it. Digging into the floor of the shelter he unearthed a notched arrow point of smoky quartz in a perfect state of preservation, associated with several broken ones, a few chips of chert and bones of deer. Moreover, there were indications of an ancient fireplace several inches below the surface.

Within a hundred meters of this place, still higher up the slope, there is another overhang or sheltering rock at the foot of an outcropping ledge, which is said to have afforded objects of aboriginal workmanship. Unfortunately, the floor of this covert is now strewn with a great mass of rock débris that had fallen off its roof within the past twenty years, presenting a serious obstacle to investigation. As a matter of fact, the rock of all this region is badly weathered and, being stratified, it tends to split off in large flat slabs, the flagstones so named. (See Fig. 56.)

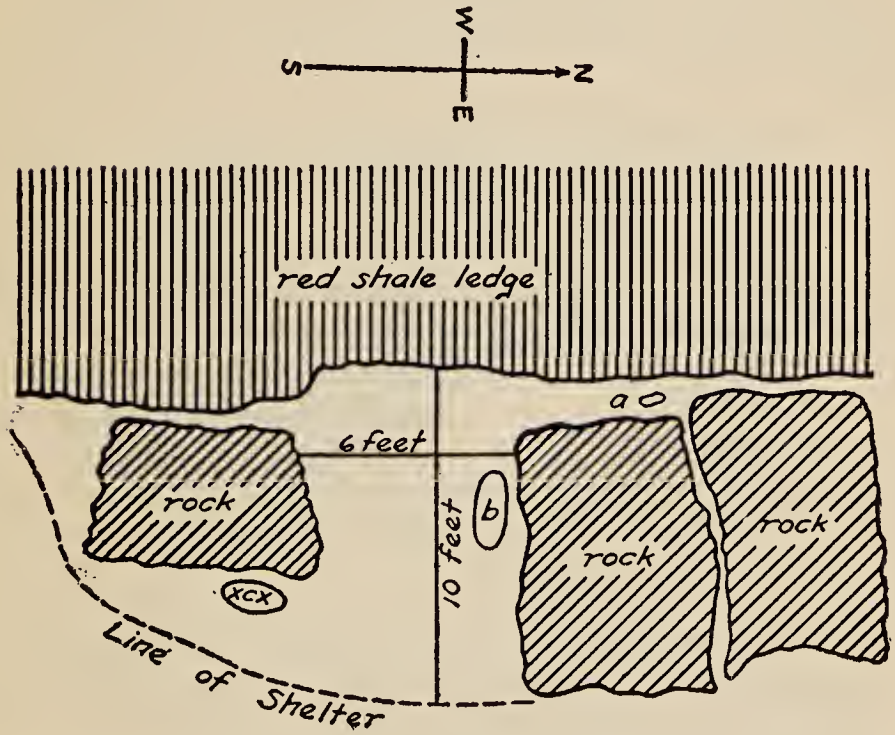
In the immediate propinquity of this place a perennial spring bubbles out from under the ledge, its water clear and very cold. A never-failing water supply like this could not but make this shelter all the more desirable. It certainly would have made its whilom occupants independent of the river, some seventy feet below. Here an old-time resident pointed out to the writer what once may have been a good path leading from the shelter down the declivity to the river. It is now but faintly recognizable, but, as he said, was quite plain when first he saw it, more than forty years ago. Who knows but this trail may have been trodden by moccasined feet!

Some two hundred meters northeast of the shelter the sloping fields



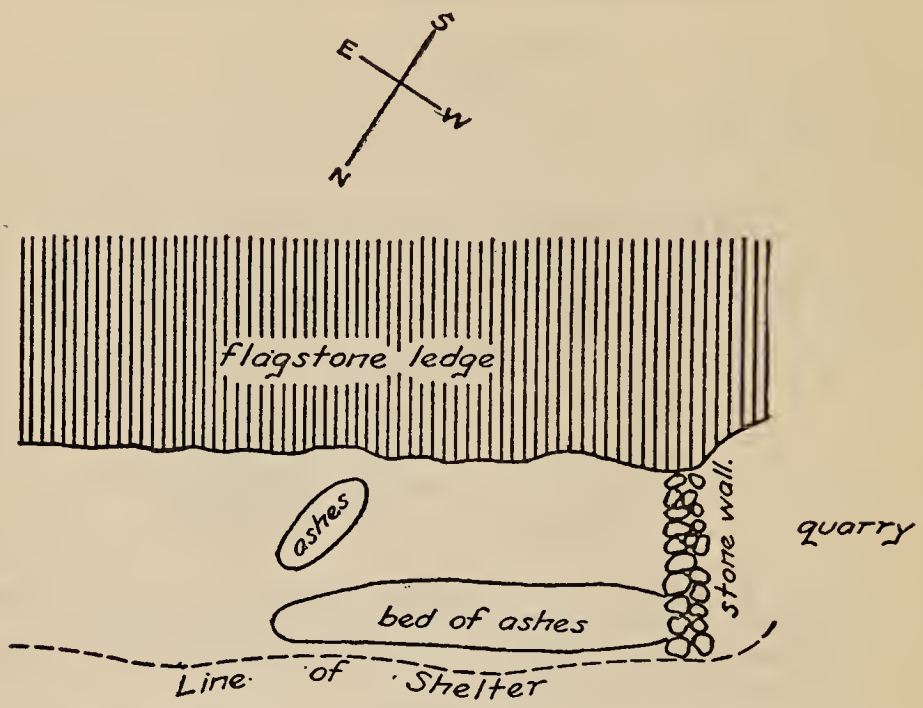
Ground plan of partly collapsed shelter between Kimbles and Baoba, on the north bank of the Lackawaxen; length about 10 feet, depth 8 feet; southerly exposure.

FIG. 56



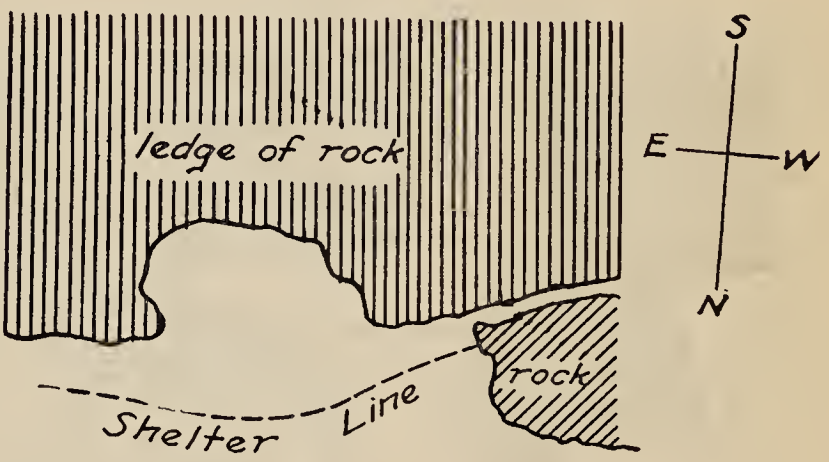
Ground plan of White Haven rock shelter, Luzerne Co. Pa.
a. spot where jar was found.
b. traces of hearth.
xcx. place where chips, etc., lay.

FIG. 57



Ground plan of Buckskin Cave near Glen Eyre Pike County, Pennsylvania. Length about 30 feet, projection of roof 10 feet. Faces north west.

FIG. 58



Ground plan of shelter, referred to as Chipping place; some 10 feet long, 8 feet deep by 6 feet high. It lies between Baoba and Glen Eyre on the south bank of the Lackawaxen and it faces north.

FIG. 59

have yielded relics of the Redman, arrow points as usual predominating. This camping ground was well chosen with the Lackawaxen close by and several fine springs gushing forth from the hillside.

Scores of chips and pieces of raw material, evidently broken up by the hand of man, were found littering the top of the sandy bluff, as well as the north bank of the Lackawaxen, about a quarter of a mile downstream.

SOUTH OF THE LACKAWAXEN

The remaining five sites lie along the south bank of the river excepting a rock shelter in the vicinage of Glen Eyre.

On the bottom lands, within the sharp loop described by the Lackawaxen and less than two miles downstream from the last-named site, the natives were wont to camp, judging from the remains they have left behind. Aside from the ubiquitous arrow point, a stone pestle for pounding corn and two or three tomahawks have here been gathered. Yet the paucity of finds at this spot shows that it was only a small hunting camp, occupied on and off for brief spaces of time.

THE CHIPPING PLACE

About a mile below Baoba, midway between it and Glen Eyre, the south side of the river is dominated by steep wooded hills and near the base of these the writer located a small rock haunt, some ten feet long by six feet high, the floor of which was quite free from rock detritus and therefore easily dug into. (See Fig. 59.)

Although it lies fully forty feet above the level of the Lackawaxen, subsequent excavation of the sheltered space yielded unmistakable testimonials of erstwhile Indian occupancy. True, this evidence was of a most meager character, for it consisted in nothing more pretentious than flakes of chert, flint and quartz, all of them of diminutive size and indicative of secondary chipping.

That these slivers had been struck off by human agency and were the remains of implement-making is certain beyond peradventure. Since nothing else came to light, however, it is equally certain that this rock was anything but a favored haunt of the Redman. In all probability, it was resorted to but once and we may imagine some wandering huntsman squatting down under cover of that ledge for the purpose of fashioning a few points or, more likely, of applying to them the finishing touch.

GLEN EYRE

The level expanse on the top of the glacial deposit immediately west of Blooming Grove Creek, not far from where it debouches into the

Lackawaxen, was unquestionably the site of an Indian encampment, where vestiges of primitive handiwork were once fairly abundant. However, like most prehistoric sites hereabouts, it has long ago been despoiled of these interesting reminders of a past age and today nothing may be found but a few chips, a reject or, perhaps, a crude hammerstone or netsinker that treasure seekers had passed by unrecognized.

Topographically, this camp was favorably situated, near the confluence of two streams, each of which afforded a convenient route for travel along their respective courses. In fact, we may safely assume that an ancient path wound through the narrow valley or defile that is drained by Blooming Grove Creek, connecting the old Shohola Falls war path, a few miles to the south, with the minor trail through Lackawaxen Valley. But of this more will be said presently.

A camp of some importance occurred on the broad acres about half a mile below Glen Eyre. Quantities of artifacts eloquent of aboriginal activity have here been garnered in former years, among them many triangular points of chert and quartz, i. e., of a type reminiscent of Iroquois culture.

It is worth noting that none of these sites afforded any traces of earthenware such as would inevitably betoken the presence of squaws. Accordingly, it may be presumed that all of them were hunters' camps or visited exclusively by males. And this is precisely what one would anticipate in a region as rugged as this.

THE BUCKSKIN CAVE

By far the most interesting prehistoric site in the territory under review was the Buckskin Cave. For one thing, it proved to be the only spot that contained any pottery fragments. It was due to the courtesy of George Carpenter, station agent and postmaster at Glen Eyre, that the investigator learned about its existence, and being furnished by him with detailed information anent its exact whereabouts, he experienced little difficulty in finding it. (See Fig. 58.)

The Buckskin Cave, so named, is really not a cave but a rock shelter or overarching ledge and a typical one it is, such, indeed, as was apt to attract any aborigine hunting through these mountains. It is situated about a mile and a half southeast of Glen Eyre station near the crest of Buckskin Mountain, approximately 1,000 feet above the level of the sea. The woodland trail leading to it is mostly uphill through a fine stand of forest, composed largely of hemlocks, pines and rhododendrons of tree-like proportions. But the shelter itself is not directly on this trail but about thirty meters south of it and quite invisible from

it in summer time, being then screened from view by the heavy forest mantle.

Owing to this circumstance, it is not readily found. Fortune, however, favored the writer, for, striking a beeline through the thicket, he chanced squarely to light upon it. Seeing the yawning cavity under the cliff, he felt at once assured of its archæological moment. And a remarkable natural formation it is, spacious and withal little encumbered by rock detritus, such as so often breaks off the roof, producing a rough floor.

The shelter has a northwest exposure and in point of dimensions it is one of the largest he has yet discovered, as it is more than thirty feet long by seven feet high and it has a roof projection of fully ten feet, the result being a splendid covert, affording ample protection from the elements. But most welcome of all, as just stated, its floor was comparatively unobstructed by fallen rocks. In consequence, digging up its floor proved relatively easy and the services of a crowbar could be dispensed with.

An abandoned quarry of extensive size adjoins the right-hand portion of the shelter, resulting in some damage. The bulk of it had, however, been left intact apparently for the reason that the workmen found good use for it, for not only was it a convenient retreat in the event of rainstorms but they employed it as a workshop, wherein to sharpen their tools and, during the noonday recess, to eat their lunch.

It remains to be said that the shelter overlooks a high-level valley, named Buckskin Hollow, to the northwest of it and quite swampy throughout. Here a small stream rises and there is no question that from it the huntsmen, anciently frequenting this spot, secured their supply of water.

RESULTS OF EXPLORATION

The floor of the rockhouse was not entirely unobstructed by fallen rocks, to be sure, but these consisted mostly of flagstones of moderate size that could be easily removed, and additional rocks were embedded in the subsoil. When first seen, the floor was found to be perfectly level and a stone wall built of flagstones ran along the outside beneath the shelter line, some eight feet from the rear wall.

As for the flagstones, with which the floor was paved, there is little doubt that they had been put there by the quarrymen for the sake of keeping their feet dry. The culture deposit appeared to be immediately underneath this top covering for on removing some of it articles suggestive of former Indian occupation were at once encountered without any digging.

The first object that came to light was the shoulder blade of a deer. Suffice it to say that in the course of the excavation many hundreds of bones were unearthed, most of which belonged to deer. But there were also some bear bones, these being, as a rule, larger and thicker, the remains of a large bird, probably wild turkey, fragments of the carapace of turtles and a considerable quantity of fresh water mussels of the kind known as unio shells.

In addition there were found scores of potsherds or pottery fragments, either plain or ornamented, the designs being crude and distinctly characteristic of the Lenâpé culture. None of these was larger than about the size of a silver dollar and the greatest depth at which they occurred was about ten inches below the surface, whereas some of the bones lay fifteen inches deep.

Strange to say, only a few chips or flakes were noted, most of them of grayish chert, along with a broken arrow point of the same mineral. The color of the culture-bearing deposit was uniformly dark and testified to ancient fires, traces of which extended throughout much of the shelter but more particularly along the outside, where they also reached farthest down. However, no well defined hearth could be made out nor was there any niche along the rear wall that might have been used as such.

GENERAL CONCLUSIONS

From the evidence extant a few inferences may be drawn. In the first place, the abundance of bones leads us to conclude that the natives often feasted under this rock. As for the preponderance of bones of cervine origin, it must be obvious that, then as now, this region teemed with deer. The Redman, of course, knew all the good hunting grounds and deer had always been his favorite quarry. Hence the desirability of this covert in the midst of a rich game country.

Further, the occurrence of pieces of pottery implies, as always, the former presence of squaws at this place, for it is to be remembered that the manufacture and transportation of earthenware was invariably left to the women. Again, the type of decoration and the shape of the rim sherds point to both Iroquois and Algonkin industry with the latter predominating and this is not at all surprising since all this territory was claimed by the Munsee division of the Lenni Lenâpé. As for the number of pottery jars that had here come to grief, examination of the remains seems to show that they belonged to at least nine pots.

The paucity of chips and total absence of finished implements under this rock appears somewhat incongruous when contrasted with the

profusion of bones here unearthed. Assuredly, it was not a workshop or place where the ancient dwellers manufactured their tools.

BETWEEN GLEN EYRE AND LACKAWAXEN

As previously stated, four camps were located below Glen Eyre along the final stretch of the Lackawaxen, a distance of six miles. Two of them lay on the south bank of the stream, viz., one was on the elevated river flats locally known as the old Governor place, a mile below Rowlands, the other on the Beisel farm, about a mile and a half above the mouth of the stream. As for the other two, on the north bank, one lay two miles above its mouth and the second less than a mile from it, at a point about opposite the influx of Lord's Brook, a small affluent of the Lackawaxen. Several level tracts along here, now overgrown with grass and shrubs, between the foot of the hills and the Lackawaxen, are likely to have been used as camping grounds.

ABORIGINAL MEMENTOES ALONG LEHIGH RIVER VALLEY NEAR WHITE HAVEN, LUZERNE COUNTY

A few years ago the author made an archæological reconnaissance along the valley of Lehigh River and circumjacent country in the vicinity of White Haven, Luzerne County, Pennsylvania. During the seven weeks he was thus engaged he explored an area of about one hundred square miles, lying in a narrow belt along both banks of the river for a distance of eighteen miles, from the mouth of the Tobyhanna on the north to the mouth of Mud Run on the south, some six miles below White Haven.

TOPOGRAPHICAL ASPECTS

All this territory is mountainous and in part of almost primitive wildness. Its altitude above sea level is considerable, ranging from 1,100 feet at the banks of the Lehigh to nearly 2,000 feet. Being a swift-flowing stream by reason of its high gradient, it has, no doubt to a large degree, carved its way in the lapse of ages across this masonry of rugged hills, the work done by it showing plainly throughout its upper reaches, where it flows through deeply trenched valleys, often of a gorge-like character, with the encompassing elevations rearing themselves steeply on both its sides. Below White Haven, in particular, precipitous scarps rim its channel more or less continuously for a score of miles, forming miniature canyons and leaving little space between their base and the river.

East of the Lehigh, abutting on its banks, in Carbon County, the westernmost spurs of Pocono Mountain terminate in a much dissected tableland of broad, swelling hills, averaging more than 1,800 feet in height. The ravines separating the individual hills generally mark the course of small streams carrying their drainage riverward. It is rough land, sparsely settled and traversed by infrequent roads.

Equally rugged, if anything, is the terrain on the west side of the river, in Luzerne County, about six miles above White Haven. For miles above and below its junction with Bear Creek, its principal westerly affluent, there stretches forth a veritable wilderness of cliffs, jagged rock outcrops and tangled thickets, a tract as yet hardly encroached upon or ameliorated by the tread of civilization.

The region farther downstream near White Haven presents a much gentler aspect, for here there is a rolling landscape, comparatively open,

traversed by low hills and falling away toward the Lehigh. Yeager and Green mountains are its most conspicuous natural features, each attaining an altitude of about two thousand feet and trending westward in parallel ridges at right angles to the river. (See Chart.)

DISTRIBUTION OF SITES

Considering its physical asperities, the difficulties it opposed to travel and the scarcity of fertile, tillable soil, this region was not well suited for aboriginal occupation. And, surely, the results of the survey go to prove that it was but little frequented. For one thing, few of the fourteen sites noted afforded any evidence of having been more permanently occupied. Most of them were small, if we may judge by the remains extant, bespeaking a brief, transitory sojourn on the part of hunters and anglers, who, it would seem, were occasionally accompanied by females. The presence of the latter and probably also of papoose may perhaps be best accounted for by assuming that sometimes whole families would be traveling across these fastnesses en route from the Delaware to the Susquehanna or vice versa, for the real or more lasting homes of the tribes once haunting this area were indubitably in the valleys of these great streams. But though, conceivably enough, this mountain tract witnessed the peregrinations of many a band of savages, it being, as it were, a land of passage, unavoidably to be crossed in obedience to stern necessity, it was yet primarily a game area, possibly used in common by the natives of the two principal river valleys.

Among the fourteen camping grounds, above referred to, there were two rock shelters, both on the banks of the Lehigh, five fishing sites, also on its banks, while the others lay at some distance east of the river, high upon the flanks of the mountains, in Carbon County. One of these gave every indication of having been a large prehistoric workshop.

MUD RUN

In a few localities articles of primitive origin have been picked up every now and then, notably at the mouth of Mud Run, on the east bank of the Lehigh, about five miles south of White Haven.

HAYES CREEK

Aboriginal remains have also been reported from the bottoms near where Hayes Creek, another easterly tributary, empties into the river.

LEHIGH TANNERY

At Lehigh Tannery, on the west bank, a little more than a mile south of White Haven, quantities of artifacts have been recovered in the past.

Even at the present time, the knolls bordering the small brook not far from its mouth are littered with chips, mostly of flint, chert and jasper, denoting the former wigwam sites of the natives, who came here to fish.

LINESVILLE CREEK

No signs indicative of former Indian occupation were found on the banks of Linesville Creek, in the deep narrow valley between Yeager and Green mountains, west of White Haven. However, scattered relics are said to have been collected at several spots along the creek.

THE WHITE HAVEN ROCK SHELTER

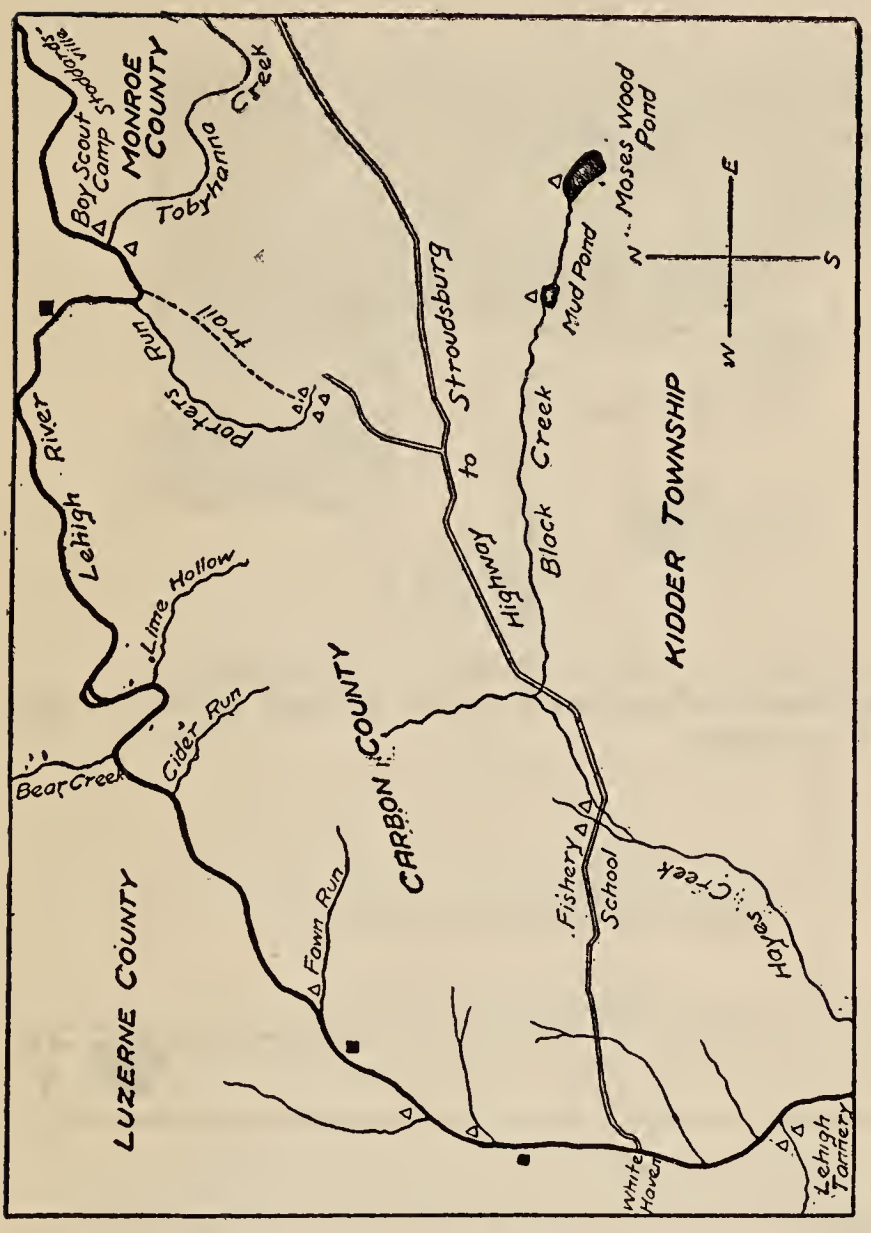
Less than a mile north of the railroad stations, on the west bank of the river, there occurs a small rock shelter, well known hereabouts for having yielded, years ago, a fine prehistoric pottery vessel of Andaste or archaic Iroquois type. It lies at the foot of a red shale cliff close to the river and so little elevated above the water's level as to be subject to inundations at times of freshets.

Its roof impends from six to ten feet and is high above the floor, yet the available space beneath is only about six feet wide owing to the occurrence of huge blocks of detached rock to its right and left, curtailing the sheltered area (see fig. 57). The overhang opens eastward facing the river.

The above jar was found quite accidentally and is reported to have lain at the extreme end of the right-hand cleft or fissure, between the face of the cliff and the fallen rock mass. Otherwise, the covert had apparently been left undisturbed, as its floor showed no traces of having been excavated. The author made a thorough examination of this crevice without, however, discovering anything more.

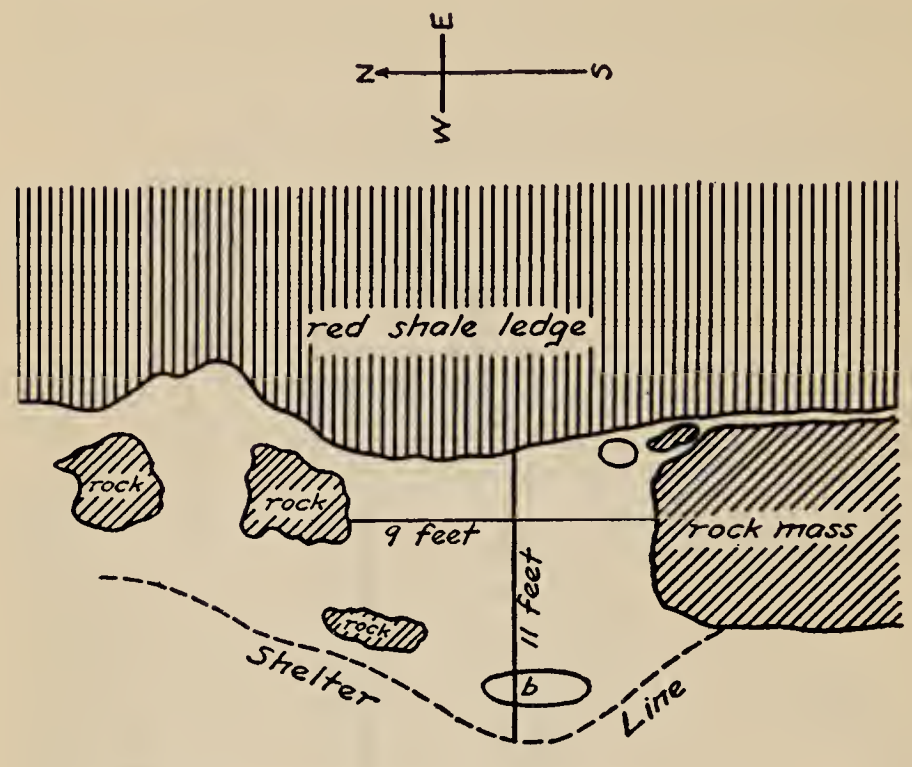
Several trenches were dug from the rear wall toward the line of shelter, covering all of the six-foot space between the fallen rocks. At first, the place seemed to be devoid of aboriginal remains for nothing came in view although digging to a depth of more than a foot. It was not until the right-hand portion was reached that the first tell-tale marks were seen. Here, close to the rock (see figure), about four inches below the surface, the trowel struck a shallow deposit of dark soil, two feet long by one foot wide, containing what appeared to be ancient ashes and some charcoal together with a few chips, small bones, evidently cervine, fractured brook mussels (unio complanatus ?) and bits of pottery, plain or cord-marked.

Excavating the dirt between the left-hand rock mass and the shelter line yielded additional sherds, chips and bones, buried at a depth of from four to six inches.



Section of Lehigh River and vicinity, Kidder Township, Carbon County, Penna., giving situation of rock shelters and camp sites.
■■ rock shelters. ΔΔ camp sites.

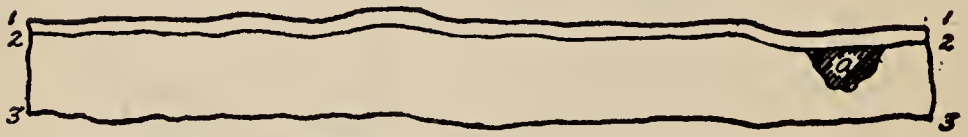
FIG. 60



Ground plan of Devil's Elbow rock shelter, Carbon County, Pa. depth about 11 feet, width 9 feet.
a, b.–Fireplaces.

FIG. 61

Devil's Elbow Rock shelter.



Longitudinal section of trench along rear wall of shelter.

1-1. Modern surface, length 9 feet.
2-2. Indian level.
3-3. Depth of excavation. about 15 inches.
a.- Fireplace.

FIG. 62

The paucity of cultural contents under this rock shows clearly that it was but seldom visited. As the pottery fragments were small and undecorated, save for fabric-markings, nothing positive can be said as to whether they are of Algonkin or Iroquois type. On the other hand, the finding of a jar of purely Andaste or Conestoga pattern at this spot leads one to conclude that it was once resorted to by people of Iroquois stock, if only for the purpose of concealing this jar.

WRIGHT CREEK

A fishing camp was located half a mile farther upstream, on the same side of the river, at the mouth of Wright Creek. It is a level plot of ground, a flood plain so called because subject to inundations. Even now arrow points and netsinkers are here turned up by the plough.

CARBON COUNTY

We shall now turn our attention to the encampments east of the river, in Carbon County. To begin with, traces of a camp were distinguished a mile and a half above the bridge that connects White Haven with East Side, at a point almost opposite the Wright Creek station, just discussed. It is situated close to the mouth of a small water course, on a high bank, in virgin soil, all overgrown with small trees. Chips sticking out of the bare sand banks fronting the river led to its discovery.

On digging up the soil between the trees, the author unearthed much refuse of implement-making, such as chunks of raw material, mostly of chert, scores of flakes and a battered hammerstone. While evidence like this points plainly to a workshop, we can only speculate as to its size, owing to its being in undisturbed forest land.

THE DEVIL'S ELBOW

One of the few prehistoric stations within this area that appear to be suggestive of repeated occupancy, is the rock shelter known locally as the Devil's Elbow. This interesting site lies two and a half miles above White Haven at the base of a lofty red shale cliff that flanks the Lehigh for a distance of hundreds of meters. It is an overhanging rock of a type commonly met with and being close to the Lehigh, it probably owes its origin to erosion or a process of undercutting on the part of the stream, reinforced by atmospheric agencies that wear away the less resistant mineral substances, leaving the more durable layers to jut out over any cavity thus formed. (See Fig. 61.)

Having a maximum overhang of eleven feet high above the floor and

a width of nine feet, the shelter is enclosed, moreover, by a large mass of rock, that rises laterally on its right like a solid wall of masonry, adjoining the parent ledge. As its exposure is toward the west, overlooking the Lehigh, it receives the benefit of the afternoon sun. As just mentioned, it lies hard by the river's edge, only a few feet off, and its floor is about eight feet above the normal level of the water. This being so, it has often, no doubt, been flooded by the stream, for the latter is known to change into a raging torrent after prolonged downpours of rain. In fact, there was plenty of evidence of such overflows at the foot of the cliff as well as under this rock where it showed in the form of driftwood and fine sand spread out over its floor. However, in the day of the Indian, when the heavy forest growth tended to hold back most of the moisture, releasing it but slowly, such freshets were presumably unheard of so that this covert remained dry at all seasons.

THE WORK OF EXPLORATION

No sooner had the author set foot under this rock than he was certain that it had never been touched by curio hunters, for there were no signs of diggings, no earth heaped up here and there, showing that such had been the case. The surface of the floor was smooth and covered with a layer of grayish, dust-like sand which proved to be some two inches in thickness. The shelter being in its original condition, the culture débris subsequently found may be supposed to have been "in situ," that is to say, where it had been left by its last occupants.

As the fine sand forming the top layer had apparently been washed in, nothing in the shape of prehistoric remains lay exposed to view. Immediately underneath this accumulation the dirt was of a different color; i. e., rather dark and withal more compact.

Three parallel trenches were dug across the whole width of the covert, each three feet wide, beginning at the inner wall and continuing toward the shelter line. The first objects of an aboriginal character noted were chips of chert and cord-marked potsherds, lying directly beneath the stratum of fine sand on top of what was doubtless the original surface or Indian level. Thence downward to a depth of some fifteen inches, where rock bottom was struck, numerous additional chips and pottery fragments came to view together with a few netsinkers and broken arrow points.

Near the lateral mass of rock over to the right there were unmistakable indications of a hearth or firepit, more than a foot square and about fifteen inches deep. Here the soil was still darker and it contained a considerable amount of débris like chips, sherds, a couple of

netsinkers, a crude borer, of rhyolite, and a few bones, probably cervine, all of which was distributed quite evenly down to rock bottom (see fig. 62).

The second trench immediately adjoining the first, passed through the centre of the covert. As before, vestiges began to appear directly below the layer of silt, thence reaching down a foot or more, occurring scattered throughout, seemingly not concentrated at any one level. The cultural contents recovered therein consisted of broken pieces of pottery, all of them crudely cord-marked, an abundance of flakes, imperfect points, either triangular or stemmed, a netsinker and two fragments of gorgets, of red shale, fractured where one of the perforations had been, for this type of artifacts is usually pierced in two places at opposite ends. Though the soil was dark, as is common with strata bearing abundant culture material, no regular fireplace could be distinguished.

The last trench near the shelter line yielded a profusion of remains identical in character with those previously noted, including additional netsinkers and fragments of arrowheads. At a point opposite the centre of the shelter, about eight feet from the rear wall, a large fireplace was encountered, as revealed by quantities of ancient ashes and heat-cracked pebbles. Its dimensions were roughly three feet long by sixteen inches wide, with a depth exceeding fifteen inches. It contained dozens of pottery fragments, chips and a few mammalian bones. Near its right-hand edge, about four inches beneath the ancient floor, there was a pile of sherds, apparently belonging to a single pot inasmuch as they were much alike in color, thickness and style of fabric-markings.

SUMMARY OF THE MATERIAL FOUND

The remains of primitive industry obtained under this covert consisted of sixteen broken arrowheads or diminutive fragments of such, seven of which were triangular, while the others were notched or straight-stemmed points so far as could be determined from their fragmentary condition; portions of two gorgets; one borer; one scraper, of chert, triangular in shape; ten netsinkers, made of water-worn pebbles, of slate, sandstone or shale, flat, oval in shape and notched medially at opposite sides; hundreds of chips, nearly all of them small and mostly of chert, while the others were of flint, smoky quartz, rose quartz, quartzite and jasper, either red or yellow; several hundred pieces of pottery, possibly belonging to a dozen jars, all made of coarse clay tempered with crushed quartz. Some of the sherds were more than half an inch thick. Most of them were fabric-marked. A

few were rudely decorated with stamped lines, oblique or horizontal, others displayed the herringbone design, probably produced with a roulette. There were also seven rim sherds, apparently representing six vessels, one of them exhibiting a recurved lip. There were no examples of free-hand incised lines, such as are characteristic of Iroquois industry. Strange as it may seem, the number of bones found was egregiously small, not exceeding a few dozen.

GENERAL CONCLUSIONS

From evidence like the above we may draw certain inferences relative to the character of this station, the purpose for which it was used, the culture and hence the tribal affiliations of those who once sojourned under its hospitable roof. The assortment of remains there unearthed, though not in any sense remarkable, certainly serves to tell an eloquent tale. In the first place, it has to be admitted that the peculiar position of this rock close to the river warrants us in assuming that it was resorted to mainly for the purpose of angling, that it was a fishing camp. True, no fish bones were found tending to support this theory, but the absence of such traces may be readily accounted for by calling attention to their perishable nature. Again, the scarcity of mammalian remains furnishes evidence showing that the occupants of this covert did not subsist to any degree upon meat. This being the case, we may safely conclude that they derived most of their food from the Lehigh in the form of fish. Apart from all this, the occurrence of numerous netsinkers at this spot is additional evidence to that effect.

As for the profusion of chips or refuse of implement-making, it plainly means that this shelter was the site of a workshop, wherein the primitive artificer plied his trade, fashioning arrow points, netsinkers and other tools for himself and maybe his associates. Consequently, this place was a fishing camp and factory alike.

Lastly, the quantities of shattered eathenware embedded in the subsoil suggest the whilom presence of squaws sharing the shelter with their male consorts. Not only that, but the abundance of these remains inclines us to think that this place was resorted to repeatedly if only for brief spaces of time. Nor does the type of the pottery leave any doubt as to the culture of those who made it. On the contrary, everything goes to prove that it was produced by people of Algonkin stock, that they were Lenâpé, either members of the Unami or Munsee division who, we may be sure, had come under the influence of Iroquoian industry, as is evidenced by the relatively large number of triangular arrow points, they had here left behind. It should be added

at this point that the excavation of this station revealed, as usual, but one culture horizon and that it was Middle Algonkin.

FAWN RUN

A fishing camp was noted half a mile farther upstream, on the flats, at the mouth of Fawn Run.

The eight-mile stretch of river valley between Fawn Run and the Palisades, a bold, precipitous promontory half a mile below the mouth of the Tobyhanna, appeared to be destitute of all traces of habitation. It will be recalled that this section is uncommonly rough, with the Lehigh pursuing its sinuous course through gorges and past frowning bluffs, and there are no level tracts or bottom lands providing desirable camping grounds. Even today, there is not a house anywhere within this strip of country.

UPPER HAYES CREEK

East of the Lehigh, in the rugged highlands of Carbon County, several camps were located, occurring sporadically by creek and pond. Two of these were on the upper reaches of Hayes Creek, in a neighborhood known as Fishery School, less than a hundred meters north of the highway running from White Haven to Stroudsburg.

MUD POND

Vestiges of a prehistoric nature have been met with on the shores of Mud Pond, a small body of water lying 1,760 feet above the tides.

MOSES WOOD POND

When digging foundations for bungalows on the banks of this pond, situated less than a mile east of the preceding one, at an altitude of 1,800 feet, similar remains were encountered. They may be presumed to mark the sites of ancient fishing camps.

THE HUNTERS' WORKSHOP

A site of unusual significance was noted on the broad level top of a mountain, 1,800 feet above mean tide, on the Dotter farm, about two miles northwest of Mud Pond. It occupies the edges of a shallow depression, containing three springs that form the sources of Porters Run, a short stream tributary to the Lehigh, two miles farther north and 600 feet below.

There is abundant evidence showing that the rising ground all about the depression had been the site of an aboriginal camp and workshop, covering several acres of land. Its discovery, in spring of 1920, was

purely accidental, having been due to pigs rooting in the soil. An enormous quantity of chips have here been dug up, lying buried to a depth of two feet. The materials employed were chert, flint, quartz, quartzite, and jasper. While chert predominated, some thirty per cent of the flakes were of jasper, this having probably been obtained at the ancient quarries in Bucks County, Pennsylvania.

As for the types of implements thus far recovered, they consisted almost exclusively in arrow points and a few spearheads. A complete pottery vessel was also exhumed and according to the description it was of Algonkin origin.

Here, then, on the mountain summit, the aboriginal huntsmen were wont to camp. Here, by the headwaters of a brook fed by three springs, they would congregate, replenishing their stock of weapons preparatory to the chase. Hither they may have wandered for unnumbered centuries, lingering for a day or two, for it was in such regions as this that they sought bear and deer, Yea, even at the present time, bear continue to haunt their ancestral runways, along with the timid deer and fiercer brutes like catamount and wildcat.

AT THE MOUTH OF THE TOBYHANNA

At the foot of the mountain there is a long narrow flat, extending along the Lehigh in a southwesterly direction, all the way from its junction with the Tobyhanna to the mouth of Porter's Run. Immediately below the confluence of the two main streams, in Carbon County, signs of native occupation have been discovered many years ago when ploughing the ground, proving that it was used as a camp site.

Over in Monroe County, in the angle formed by the Lehigh and the Tobyhanna, now occupied by a Wilkes-Barre boy scout camp, there was another and presumably much larger fishing site. Many artifacts have here been found in the course of grading this tract. A more detailed description of this site and of a rock shelter, named the Angler's Haunt, a mile farther downstream, is given in the author's report on the archæology of Wyoming Valley and vicinity.

What with the large workshop on the mountain top, the two fishing camps and near by rock shelter on the Lehigh, all occurring within a comparatively narrow compass, this region seems to have been one of the favored localities of the Redmen, once dwelling in the river valleys near these mountains. The valley was bound to prove attractive, lying as it does amid sheltering hills and made up of extensive bottoms at the junction of two streams.

Doubtless, an aboriginal trail led from the workshop to the river.

Its approximate whereabouts may have been through the gully, down which courses Porter's Run, already mentioned as springing in the hollow near the workshop. Near the mouth of this brook, the Lehigh swings sharply to the north at an angle of ninety degrees, for here the Palisades, hundreds of feet long by two hundred feet high, rise transversely to its course, interposing an insuperable barrier and forcing it to curve around. It is a magnificent crag of red shale capped with gray conglomerate rock, wondrous withal in its sculpture, as it lifts its lofty height sheer from the water's edge, its abrupt faces affording a precarious foothold to a few scattering pines and its brow tufted with other evergreens.

THE ANCIENT VISITORS OF THIS REGION

Within the Pocono Mountain area, that is, between Delaware and Lehigh rivers, there appear to have been relatively few Indian sites, those occurring being either rock shelters, workshops, like the one just spoken of, or fishing camps along the Lehigh and its larger affluents. In the days of the Redman it was no doubt an ideal game preserve, the habitat of many species of wild animals prized for food and peltry, while the river teemed with fish. A region like this the primitive hunters were sure to visit and hither they repaired periodically, securing their supply of venison or trying their luck by the river's bank. Numerous paths, we may presume, intersected the wilderness giving access to the runways of deer and the dens of bear. Yet it is questionable whether within this particular area a path could ever have skirted the Lehigh for any considerable distance, so impassable it is. And, in fact, such trail as existed would have been alternately on one bank or the other.

The entire region of country was claimed by the Indians of the Six Nations or Iroquois, though they did not actually live here, at least not at the time when the white man appeared on the scene. The last aborigines to hunt through these mountains were the Shawnees, Nanticokes and Munsees, along with some Unami and possibly Unalachtigo. But as the Iroquois had gained full control over all this territory ever since they had defeated the Susquehannocks, it was solely by sufferance that the above groups were permitted to use it as a quasi asylum and game preserve.

Concerning the significance of the names Lehigh and Tobyhanna, it is quite certain that the former was originally called Lehawhanna, the prefix Lehaw meaning the forks, while the suffix hanna denotes a stream, as for example, Susquehanna, indicating a muddy stream. As regards the word Tobyhanna, it is corrupted from Topi-hanne, meaning "alder stream."

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